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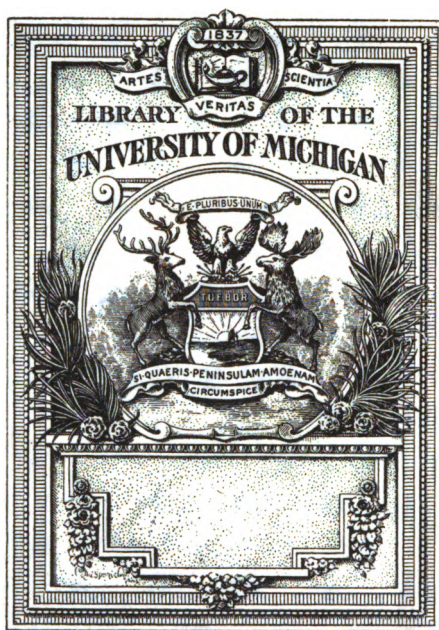
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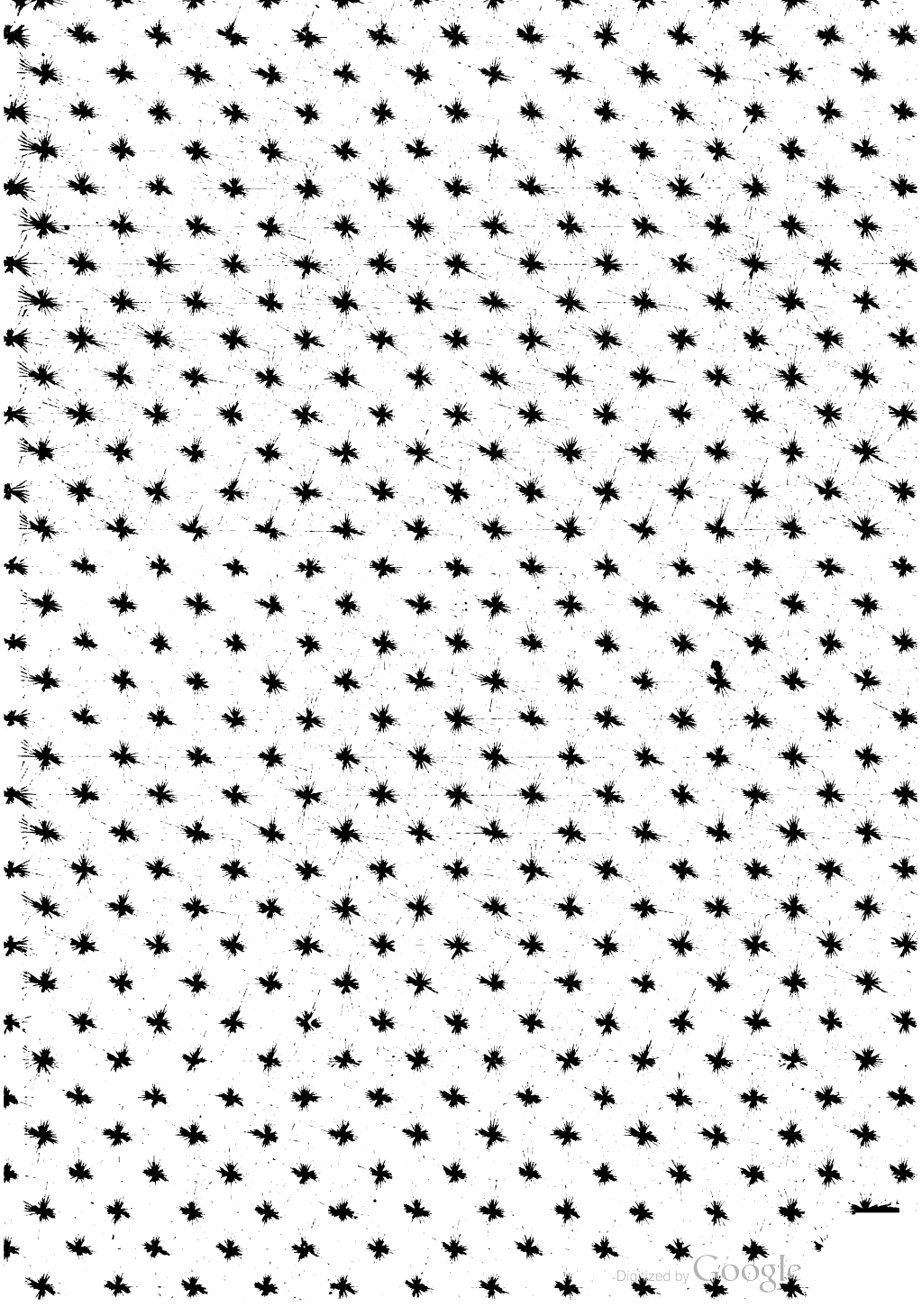
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LELAND STANFORD JUNIOR UNIVERSITY

THIRTEENTH
ANNUAL REGISTER
1903-04

"The beneficence of the Creator towards man on earth, and the possibilities of humanity, are one and the same."—LELAND STANFORD,

"A generous education is the birthright of every man and woman in America."

STANFORD UNIVERSITY, CALIFORNIA

PUBLISHED BY THE UNIVERSITY

APRIL, 1904

SAN FRANCISCO
PRESS OF C. A. MURDOCK & CO.
1904

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OFFICE DIRECTORY *

The rooms in the Inner Quadrangle are numbered consecutively, beginning at the left of the main entrance, ten numbers being allotted to each building. In the Outer Quadrangle forty numbers are allotted to each of the larger buildings and ten numbers to each one-story building, beginning with the Assembly Hall and number 120. The Engineering buildings south of the Quadrangles begin with number 500. The Chemistry building is on the west avenue between the Quadrangles and the Museum. The Studios are in the frame building, south of the Engineering buildings.

The office of the PRESIDENT is room 112.

The office of the REGISTRAR is room 116.

The office of the SECRETARY is room 110.

The office of the TREASURER is room 250.

The LIBRARY occupies the Thomas Welton Stanford Library Building in the Outer Quadrangle.

The office of the ASSOCIATE PROFESSOR OF HYGIENE is room 61.

The various Departmental offices are given in the SCHEDULE and in the DIRECTORY OF OFFICERS AND STUDENTS.

The University Post, Telegraph, and Telephone Office is *Stanford University, California*.

The University Railway Station and Express Office is *Palo Alto, California*.

Requests for *Registers*, blanks, and other printed matter, and inquiries regarding terms of admission, advanced standing, etc., should be addressed to *The Registrar, Stanford University, Cal.*

* For alphabetical Directory of Officers, see p. 224.

UNIVERSITY CALENDAR

1903

Aug.	21	Friday.....	Entrance Examinations begin.
Aug.	25-26	Tues.-Wed.	Registration of Matriculated Students.
Aug.	26	Wednesday.	Registration of New Students.
Aug.	27	Thursday...	Instruction begins.
Sept.	4	Friday.....	Conferring of Degrees.
Nov.	26	Thursday.	} Thanksgiving Recess.
Nov.	29	Sunday...	
Dec.	18	Friday.....	First Semester ends.

1904

Jan.	1	Friday.....	Entrance Examinations begin.
Jan.	4-5	Mon.-Tues..	Registration for Second Semester.
Jan.	6	Wednesday.	Instruction begins.
Jan.	8	Friday.....	Mid-Year Conferring of Degrees.
Feb.	22	Monday....	Washington's Birthday.
Mar.	9	Wednesday.	Founder's Day.
Mar.	25	Friday....	} Mid-Semester Recess.
April	3	Sunday...	
May	12	Thursday...	Instruction ends.
May	13-14	Fri.-Sat....	Entrance Examinations in English.
May	14	Saturday...	Memorial Day.
May	15	Sunday.....	Baccalaureate Sunday.
May	16	Monday....	Class Day.
May	17	Tuesday....	Alumni Day.
May	18	Wednesday	Commencement.

Aug.	25	Thursday...	Entrance Examinations begin.
Aug.	30	Tuesday....	Registration of Matriculated Students.
Aug.	31	Wednesday.	Registration of New Students.
Sept.	1	Thursday..	Instruction begins.
Sept.	9	Friday.....	Conferring of Degrees.
Nov.	24	Thursday.	} Thanksgiving Recess.
Nov.	27	Sunday...	
Dec.	22	Thursday...	First Semester ends.

1905

Jan.	6	Friday....	Entrance Examinations begin.
Jan.	10	Tuesday....	Registration for Second Semester.
Mar.	31	Friday.....	Mid-Semester Recess begins.
May	24	Wednesday.	Commencement.

BOARD OF TRUSTEES

Mrs. JANE LATHROP STANFORD, - - - - Stanford University
Mr. TIMOTHY HOPKINS, - - - - - San Francisco
The Hon. HORACE DAVIS, - - - - - San Francisco
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The Hon. GEORGE EDWARD GRAY, - - - San Francisco
The Hon. WILLIAM M. STEWART, - - - Carson City, Nev.
Mr. JOSEPH DONOHUE GRANT, - - - - - San Francisco
The Hon. SAMUEL FRANKLIN LEIB, - - - - San José
Mr. LEON SLOSS, - - - - - San Francisco
The Hon. THOMAS WELTON STANFORD, - Melbourne, Australia
Mr. FRANK MILLER, - - - - - Sacramento
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Mr. RUSSELL J. WILSON, - - - - - San Francisco
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The Hon. SAMUEL FRANKLIN LEIB, - - - - Vice-President
Mr. CHARLES G. LATHROP, - - - - - Treasurer
Mr. GEORGE EDWARD CROTHERS, - Secretary and Asst. Treasurer

STANDING COMMITTEES OF THE TRUSTEES

Finance: LATHROP, Mrs. STANFORD, GRAY, LEIB, MILLER, SLOSS,
CROTHERS.

University: LEIB, DAVIS, MCFARLAND, REID, GRANT, HOPKINS,
Mrs. STANFORD.

Auditing, Organization, and Rules: DAVIS, Mrs. STANFORD, REID,
GRANT, CROTHERS, MCFARLAND, SLOSS.

Museum: Mrs. STANFORD, T. W. STANFORD, HOPKINS, MILLER,
STEWART.

Memorial Church: Mrs. STANFORD, LATHROP, T. W. STANFORD.

FACULTY AND OTHER OFFICERS

[Arranged in groups in the order of seniority of appointment]

DAVID STARR JORDAN, President of the University.

Xazmin House, Serra Ave.

M. S., Cornell University, 1872; M. D., Indiana Medical College, 1875; Ph. D., Butler University, 1878; LL. D., Cornell University, 1886, Johns Hopkins University, 1902. Instructor in Botany, Cornell University, 1871-72; Professor of Natural History, Lombard University, 1872-73; Principal of Appleton (Wis.) Collegiate Institute, 1873-74; Student and afterward Lecturer in Marine Botany, Anderson School at Penikese, 1874; Teacher of Natural History, Indianapolis High School, 1874-75; Professor of Biology, Butler University, 1875-79; Assistant to the U. S. Fish Commission, 1877-91; Professor of Zoology, Indiana University, 1879-85; President of Indiana University, 1885-91; President of the California Academy of Sciences, 1896-98, 1901-03; U. S. Commissioner in charge of Fur Seal Investigations, 1896-98.

†JOHN CASPER BRANNER, Vice-President of the University, and Professor of Geology.

[In Europe.]

B. S., Cornell University, 1882; Ph. D., Indiana University, 1885; LL. D., University of Arkansas, 1897. Assistant Geologist, Imperial Geological Survey of Brazil, 1875-78; Special Botanist in South America, 1880-81; Special Agent of the U. S. Department of Agriculture for Investigating Cotton and the insects affecting it in Brazil, 1882-83; Topographical Geologist of the Geological Survey of Pennsylvania, Anthracite District, 1883-85; Professor of Geology, Indiana University, 1885-91; State Geologist of Arkansas, 1887-92.

OLIVER PEEBLES JENKINS, Professor of Physiology and Histology.

3 Lasuen St.

A. B., Moore's Hill College, 1869, A. M., 1872; M. S., Indiana University, 1886, Ph. D., 1889. Professor of Natural Science, Moore's Hill College, 1876-82; Professor of Natural Science, Indiana State Normal School, 1883-86; Professor of Biology, De Pauw University, 1886-91.

MELVILLE BEST ANDERSON, Professor of English Literature.

Menlo Park.

A. M., Butler University, 1877. Professor of Modern Languages, Butler University, 1877-80; Professor of English Literature, Knox College, 1881-86; Professor of Literature and History, Purdue University, 1886-87; Professor of the English Language and Literature, University of Iowa, 1887-91.

JOHN MAXSON STILLMAN, Professor of Chemistry.

2 Alvarado Row.

Ph. B., University of California, 1874, Ph. D., 1885. Assistant in Chemistry, University of California, 1873-75; Student in Chemistry, Strassburg and Würzburg, 1875-76; Instructor in Organic and General Chemistry, University of California, 1876-82; Chemist of the Boston and American Sugar Refining Company, 1882-92.

† Absent on leave, second semester, 1903-04.

8 Faculty and Other Officers

FERNANDO SANFORD, Professor of Physics.

450 Kingsley Ave.

B. S., Carthage College, 1879, M. S., 1882; Student, University of Berlin, 1886-88; Professor of Physical Science, Mt. Morris College, 1879-82; Superintendent of Schools, Ogle County, Ill., 1882-86; Instructor in Physics and Chemistry, Englewood (Ill.) High School, 1888-90; Professor of Physical Science, Lake Forest University, 1890-91.

CHARLES DAVID MARX, Professor of Civil Engineering.

357 Kingsley Ave.

B. C. E., Cornell University, 1878; C. E., Karlsruhe Polytechnicum, 1881. Instructor in Civil Engineering, Karlsruhe Polytechnicum, 1880-81; U. S. Assistant Engineer, Missouri River Improvement, 1882-84; Assistant Professor of Civil Engineering, Cornell University, 1884-90; Professor of Civil Engineering, University of Wisconsin, 1890-91.

CHARLES HENRY GILBERT, Professor of Zoology.

433 Melville Ave.

B. S., Butler University, 1879; M. S., Indiana University, 1882, Ph. D., 1883. Assistant in Natural Sciences and Modern Languages, Indiana University, 1880-84; Professor of Natural History, University of Cincinnati, 1884-88; Professor of Zoology, Indiana University, 1888-91; Assistant to the U. S. Fish Commission, 1880-91.

DOUGLAS HOUGHTON CAMPBELL, Professor of Botany.

19 Salvatierra St.

Ph. M., University of Michigan, 1882, Ph. D., 1886. Teacher of Biology, Detroit High School, 1882-86; Student at Bonn, Tübingen, and Berlin, 1886-88; Professor of Botany, Indiana University, 1888-91.

ALBERT WILLIAM SMITH, Professor of Mechanical Engineering.

1146 Waverly St.

B. M. E., Cornell University, 1878, M. M. E., 1886. Machinist and Contractor with Brown & Sharp Mfg. Co., Providence, R. I., 1879-80; Machinist and Shop Foreman, Straight Line Engine Works, Syracuse, N. Y., 1880-83; Superintendent, Kingsford Foundry and Machine Works, Oswego, N. Y., 1883-86; Fellow in Mechanical Engineering, Cornell University, 1886-87, Assistant Professor, 1887-91; Professor of Machine Design, University of Wisconsin, 1891-92.

EWALD FLÜGEL, Professor of English Philology.

1153 Cowper St.

Ph. D., University of Leipzig, 1886. Student, Universities of Freiburg and Leipzig, 1882-88; Privat Dozent, University of Leipzig, 1888-92.

CHARLES BENJAMIN WING, Professor of Structural Engineering.

345 Lincoln Ave.

C. E., Cornell University, 1886. Fellow in Civil Engineering, Cornell University, 1886-87, Instructor, 1887-90, Assistant Professor, 1890-91; Engineer, Pompton (N. J.) Powder Co., 1887, Phoenix Powder Co., Farmingdale, N. J., 1888; Assistant Engineer, Berlin (Conn.) Iron Bridge Co., 1889-90; Professor of Bridge and Hydraulic Engineering, University of Wisconsin, 1891-92.

FRANK ANGELL, Professor of Psychology.

1005 Bryant St.

B. S., University of Vermont, 1878; Ph. D., University of Leipzig, 1891; L. H. D., University of Vermont, 1892. Teacher in Washington (D. C.) High School, 1880-87; Assistant Professor of Psychology, Cornell University, 1891-92.

LEANDER MILLER HOSKINS, Professor of Applied Mathematics.

365 Lincoln Ave.

B. C. E. and B. S., University of Wisconsin, 1883, M. S., 1885, C. E., 1887. Instructor in Engineering, University of Wisconsin, 1885-89, Assistant Professor of Mechanics, 1889-91, Professor of Theoretical and Applied Mechanics, 1891-92.

ROBERT EDGAR ALLARDICE, Professor of Mathematics.

19 Salvatierra St.

A. M., University of Edinburgh, 1882. Baxter Scholar in Mathematics, University of Edinburgh, 1882-83, Drummond Scholar in Mathematics, 1883-84; Assistant Professor of Mathematics, University of Edinburgh, 1883-92.

WILLIAM RUSSELL DUDLEY, Professor of Botany.

9 Alvarado Row.

B. S., Cornell University, 1874, M. S., 1876. Student, Summer School, Penikese, 1874, Harvard University, 1876, Universities of Strassburg and Berlin, 1887-88; Instructor in Botany, Cornell University, 1872-76, Assistant Professor, 1876-82.

AUGUSTUS TABER MURRAY, Professor of Greek, and Secretary of the Faculty.

1019 Bryant St.

A. B., Haverford College, 1885; Ph. D., Johns Hopkins University, 1890. Fellow in Johns Hopkins University, 1887-88; Professor of Greek, Earlham College, 1888-90; Student, Universities of Leipzig and Berlin, 1890-91; Professor of Greek, Colorado College, 1891-92.

JULIUS GOEBEL, Professor of Germanic Philology and Literature.

1247 Cowper St.

Ph. D., University of Tübingen, 1882. Student, University of Leipzig, 1879-81; Instructor in German, Johns Hopkins University, 1885-88; Editor *Belletristisches Journal*, 1888-92.

NATHAN ABBOTT, Professor of Law.

318 Lincoln Ave.

A. B., Yale University, 1877; LL. B., Boston University, 1893. Professor of Law, University of Michigan, 1891-92; Professor of Law, Northwestern University, 1892-94.

JOHN ERNST MATZKE, Professor of Romanic Languages

1211 Bryant St.

A. B., Hope College, 1882; Ph. D., Johns Hopkins University, 1888. Professor of French, Bowdoin College, 1889-90; Professor of the Romanic Languages, Indiana University, 1890-91; Associate in the Romanic Languages, Johns Hopkins University, 1891-93.

JAMES OWEN GRIFFIN, Professor of German.

14 Alvarado Row.

Graduate of the Pennsylvania State Normal School, 1873. Teacher in Pennsylvania State Normal School, 1873-74; Principal, Unadilla (N. Y.) Academy, 1874-79; Student, University of Göttingen, 1879-80; Principal of Delaware Academy (Delhi, N. Y.), 1880-85; Instructor in German, Cornell University, 1885-91, Registrar, 1890-91.

RUFUS LOT GREEN, Professor of Mathematics.

13 Salvatierra St.

B. S., Indiana University, 1885, A. M., 1890. Instructor in Mathematics, Indiana University, 1885-86; Student, Johns Hopkins University, 1886-87; Professor of Pure Mathematics, Indiana University, 1887-93.

ARLEY BARTHLOW SHOW, Professor of Mediæval History.

353 Melville Ave.

A. B., Doane College, 1882; Graduate, Andover Theological Seminary, 1885; A. M., Doane College, 1892. Pastor, Congregational Church, Waco, Neb., 1885-87; Professor of History and English Literature, Doane College, 1887-92; Student, University of Leipzig, 1900-01.

ORRIN LESLIE ELLIOTT, Registrar.

12 Alvarado Row.

Ph. B., Cornell University, 1885, Ph. D., 1890. Fellow in History and Political Science, Cornell University, 1885-86, Instructor in English, 1886-91, Assistant Registrar and President's Secretary, 1890-91.

VERNON LYMAN KELLOGG, Professor of Entomology, and
Lecturer in Bionomics.

19 Salvatierra St.

B. S., University of Kansas, 1889, M. S., 1892. Student, Cornell University, 1891, University of Leipzig, 1893; Assistant Professor of Entomology, University of Kansas, 1890-93, Associate Professor, 1893-94.

JAMES PERRIN SMITH, Professor of Mineralogy and Paleontology.

1035 Bryant St.

A. M., Vanderbilt University, 1886; Ph. D., University of Göttingen, 1892. Assistant Geologist and Chemist, Arkansas Geological Survey, 1887-90.

LIONEL REMOND LENOX, Professor of Analytical Chemistry.

Castro.

Ph. B., Columbia College, 1888. Assistant Chemist, Bethlehem Iron Co., 1887; Instructor in Chemistry, Lehigh University, 1888-91; Chemist, Ordnance Department, U. S. N., Washington, D. C., 1891-92.

HENRY RUSHTON FAIRCLOUGH, Professor of Latin.

6 Alvarado Row.

A. B., University of Toronto, 1883, A. M., 1886; Ph. D., Johns Hopkins University, 1896. Fellow in Classics, University College, Toronto, 1883-84; Classical and English Master, Brockville High School, 1884-86; Graduate Scholar, Johns Hopkins University, 1886-87, Fellow, 1887; Lecturer in Greek and Ancient History, University College, Toronto, 1887-93.

MAX FARRAND, Professor of History.

19 Salvatierra St.

A. B., Princeton University, 1892, A. M., 1893, Ph. D., 1896. Boudinot Fellow in History, Princeton University, 1892-93, Fellow in Social Science, 1893-94; Student, Universities of Leipzig and Heidelberg, 1894-96; Instructor in History, Wesleyan University, 1896-98, Associate Professor, 1898-99, Professor, 1899-1901.

ALPHONSO GERALD NEWCOMER, Associate Professor of English.

Forest Court.

A. B., University of Michigan, 1887; A. M., Cornell University, 1888. Fellow in Classics, Cornell University, 1887-88; Principal, Mt. Morris (Ill.) H. S., 1888-89; Instructor in Latin and French, Knox College, 1889-91.

ARTHUR BRIDGMAN CLARK, Associate Professor of Drawing.

College Terrace.

B. Ar., Syracuse University, 1888, M. Ar., 1891. Director of Trade Schools and Instructor in Drawing, New York State Reformatory, Elmira, N. Y., 1888-89; Instructor in Architecture, Syracuse University, 1889-92.

FRANK MACE MCFARLAND, Associate Professor of Histology.

Scott St.

Ph. B., De Pauw University, 1889; A. M., Leland Stanford Jr. University, 1893; Ph. D., University of Würzburg, 1896. Assistant in Biology, De Pauw University, 1888-89; Professor of Biology, Olivet College, 1889-92; Student, Würzburg, Zürich, and Naples, 1894-96.

*GEORGE CLINTON PRICE, Associate Professor of Zoology.

[In Europe.]

B. S., De Pauw University, 1890; Ph. D., Leland Stanford Jr. University, 1897. Student in Biology, Johns Hopkins University, 1890-92, University of Munich, 1895-96.

JOHN CHARLES LOUNSBURY FISH, Associate Professor of Civil Engineering.

382 Lincoln Ave.

C. E., Cornell University, 1892. Instructor in Civil Engineering, Cornell University, 1892-93.

ELLWOOD P. CUBBERLEY, Associate Professor of Education.

7 Salvatierra St.

A. B., Indiana University, 1891; A. M., Columbia University, 1902. Professor of Physical Science, Vincennes University (Ind.), 1891-93, President, 1893-96; Superintendent of City Schools, San Diego, Cal., 1896-98.

*MARY ROBERTS SMITH, Associate Professor of Social Science.

[Honolulu, H. I.]

Ph. B., Cornell University, 1880, M. S., 1882; Ph. D., Leland Stanford Jr. University, 1896. Teacher of History, Washington, D. C., High School, 1882-84; Teacher of History, Private School, Cincinnati, O., 1884-86; Instructor in History and Economics, Wellesley College, 1886-90, Registrar and Secretary of Board of Examiners, 1889-90.

* Absent on leave, 1903-04.

*GUIDO HUGO MARX, Associate Professor of Mechanical Engineering. *[In Europe.]*

M. E., Cornell University, 1893. With Gleason Tool Co., Rochester, N. Y., 1893-94; with Bement, Miles & Co., Philadelphia, 1894-95.

CLYDE AUGUSTUS DUNIWAY, Associate Professor of History. *5 Alvarado Row.*

A. B., Cornell University, 1892; A. M., Harvard University, 1894, Ph. D., 1897. Instructor in History, Harvard University and Radcliffe College, 1896-97.

GEORGE ARCHIBALD CLARK, Secretary to the University. *7 Alvarado Row.*

B. L., University of Minnesota, 1891. Secretary, U. S. Fur Seal Commission, 1896-98.

GEORGE JAMES PEIRCE, Associate Professor of Botany and Plant Physiology. *943 Bryant St.*

B. S., Harvard University, 1890; Ph. D., University of Leipzig, 1894. Assistant in Botany, Harvard University and Radcliffe College, 1890-92; Parker Fellow in Harvard University, studying in Bonn, Leipzig, and Munich, 1892-94; Assistant Professor of Botany, Indiana University, 1896-97.

HERMAN DE CLERCQ STEARNS, Associate Professor of Physics. *3 Salvatierra St.*

A. B., Leland Stanford Jr. University, 1892, A. M., 1893. Student, University of Berlin, 1897-98.

*OLIVER MARTIN JOHNSTON, Associate Professor of Romanic Languages. *[In Europe.]*

A. B., Mississippi College, 1890, A. M., 1892; Ph. D., Johns Hopkins University, 1896. Principal, Preparatory Department, Mississippi College, 1890-91, Professor of English and History, 1891-93; Fellow in Johns Hopkins University, 1896-96; Lecturer in French Philology, Bryn Mawr College, 1896-97.

STEWART WOODFORD YOUNG, Associate Professor of Chemistry. *1146 Waverly St.*

B. S., Cornell University, 1890. Assistant in Chemistry, Cornell University, 1890-91; Instructor in Chemistry, Swarthmore College, 1891-93.

MELVIN GILBERT DODGE, Associate Librarian.

6 Alvarado Row.

A. B., Hamilton College, 1890, A. M., 1894. Librarian, Hamilton College, 1892-1901.

JOHN FLESHER NEWSOM, Associate Professor of Mining and Metallurgy. *10 Alvarado Row.*

A. B., Indiana University, 1891; A. M., Leland Stanford Jr. University, 1893, Ph. D., 1901. Assistant, Arkansas Geological Survey, 1891-95; Instructor in Geology, Indiana University, 1894-96, Assistant Professor, 1896-98.

* Absent on leave, 1903-04.

EPHRAIM DOUGLASS ADAMS, Associate Professor of History.
3 Alvarado Row.

A. B., University of Michigan, 1887, Ph. D., 1890. Principal of High School, McGregor, Ia., 1887; Principal of High School, Saginaw, Mich., 1889; Special Agent in Charge of Street Railways, Eleventh Census, Washington, D. C., 1890; Assistant Professor and afterward Professor of European History, University of Kansas, 1891-1902.

SIMON JAMES McLEAN, Associate Professor of Economics.
315 Melville Ave.

A. B., University of Toronto, 1894, LL. B., 1895; A. M. Columbia University, 1896; Ph. D., University of Chicago, 1897. Ramsay Postgraduate Scholar in Economics, University of Toronto, 1894, Mackenzie Fellow in Political Science, 1894-95, Examiner in Economics and Constitutional History, 1895-97; Fellow in Economics and Sociology, Columbia University, 1895-96; Fellow in Economics, University of Chicago, 1896-97; Professor of Economics and Sociology, University of Arkansas, 1897-1902; Advisory Work for Department of Railways and Canals, Canada, 1898-99; Special Commissioner on Railway Rate Grievances, 1901.

HENRY WINCHESTER ROLFE, Associate Professor of Greek.
Lincoln Ave. and Ramona St.

A. B., Amherst College, 1880, A. M., 1885. Student, University of Leipzig, 1881-83; Instructor in English, Cornell University, 1883-85; Professor of Latin, Swarthmore College, 1885-90; Lecturer on Latin Literature to Postgraduate Students, University of Pennsylvania, 1891-92; University Extension Lecturer, 1891-1900.

DAVID CHARLES GARDNER, Chaplain of the University
Memorial Church. *1A Alvarado Row.*

Scholar, Lord Scudamore's School, Hereford, England; Student under Farquhar McKerrow, Usk Grammar School, Monmouthshire, England; Graduate, Church Divinity School of the Pacific, San Mateo, 1897; Curate, St. James Mission, San Francisco, 1898; Rector of All Saints' Church, Palo Alto, 1898-1902.

EDWARD CURTIS FRANKLIN, Associate Professor of Organic Chemistry. *5 Salvatierra St.*

B. S., University of Kansas, 1888, M. S., 1890; Ph. D., Johns Hopkins University, 1894. Chemist to the Palo Alto Plantation and Sugar Factory, Donaldsville, Ga., 1888; Chemist to the Bella Vista Mining and Milling Co., Los Quemados, Costa Rica, 1897; Instructor in Chemistry, University of Kansas, 1888-90; Student at Berlin, 1890-91; Assistant in Chemistry, University of Kansas, 1891-93, Associate Professor, 1894-99, Professor of Physical Chemistry, 1899-1903.

HAROLD HEATH, Associate Professor of Zoology.

711 Cowper St.

A. B., Ohio Wesleyan University, 1893; Ph. D., University of Pennsylvania, 1898. Assistant in Biology, Ohio Wesleyan University, 1891-93; Professor of Biology, University of the Pacific, 1893-94; Harrison Fellow in Zoology, University of Pennsylvania, 1896-98.

GEORGE ABRAM MILLER, Associate Professor of Mathematics.
159 Encina Hall.

A. B., Muhlenberg College, 1887; Ph. D., Cumberland University, 1892. Professor of Mathematics, Eureka College, 1888-93; Instructor in Mathematics, University of Michigan, 1893-95; Student, Universities of Leipzig and Paris, 1895-97; Instructor in Mathematics, Cornell University, 1897-1901; Instructor in Mathematics, University of Chicago, summer session, 1898.

WILLIAM FREEMAN SNOW, Associate Professor of Hygiene.
9 Salvatierra St.

A. B., Leland Stanford Jr. University, 1896; A. M., 1897; M. D., Cooper Medical College, 1900. Student, Johns Hopkins Medical School, 1901-02.

GEORGE HERBERT ROWE, Associate Professor of Electrical Engineering.
1245 Waverly St.

B. S., University of Michigan, 1891. Assistant in Physics, University of Michigan, 1890-92; Instructor in Electrical Engineering, 1892-93; Professor of Physics, University of Colorado, 1893-95. Professor of Electrical Engineering, 1895-1903, Dean of Colorado School of Applied Sciences, 1901-03; Designing Engineer at General Electric Works, Schenectady, N. Y., 1899-1900.

KARL G. RENDTORFF, Assistant Professor of German.
225 Emerson St.

A. M., Leland Stanford Jr. University, 1894, Ph. D., 1896. Student, University of Giessen, 1884-85, University of Kiel, 1885-91.

*EDWIN DILLER STARBUCK, Assistant Professor of Education.
[In Europe.]

A. B., Indiana University, 1890; A. M., Harvard University, 1895; Ph. D., Clark University, 1897. Teacher of Mathematics and Latin, Spiceland (Ind.) Academy, 1890-91; Professor of Mathematics, Vincennes (Ind.) University, 1891-93; Fellow in Psychology, Clark University, 1895-97.

SAMUEL JACKSON BARNETT, Assistant Professor of Physics.
14 Alvarado Row.

A. B., University of Denver, 1894; Ph. D., Cornell University, 1898. Instructor in Physics and Biology, University of Denver, 1894-95; Assistant in Astronomical Observatory, University of Virginia, 1895-96, and Instructor in Astronomy, 1896; University Scholar and Fellow in Physics, Cornell University, 1896-98; Instructor and afterward Professor of Physics, Colorado College, 1898-1900.

CHARLES ROSS LEWERS, Assistant Professor of Law.
1 Salvatierra St.

A. B., University of Nevada, 1893; A. B., Leland Stanford Jr. University, 1896; LL. B., Harvard University, 1899.

*RAY LYMAN WILBUR, Assistant Professor of Physiology.
[In Europe.]

A. B., Leland Stanford Jr. University, 1896, A. M., 1897; M. D., Cooper Medical College, 1899. Instructor and Demonstrator in Physiology, Cooper Medical College, 1899-1900.

* Absent on leave, 1903-04.

FREDERICK JOHN ROGERS, Assistant Professor of Physics.

533 Middlefield Road.

M. S., Cornell University, 1891. Instructor in Physics, Cornell University, 1892-1900.

LILLIEN JANE MARTIN, Assistant Professor of Psychology.

15 Salvatierra St.

A. B., Vassar College, 1880. Teacher of Science, Indianapolis High School, 1880-89; Vice-Principal and Head of Department of Science, Girls' High School, San Francisco, 1889-94; Student, University of Göttingen, 1894-98.

CHARLES REYNOLDS BROWN, Lecturer on Ethics.

322 Twenty-second St., Oakland.

A. B., University of Iowa, 1883. A. M., 1886; S. T. B., Boston University School of Theology, 1889. Pastor, Wesley Chapel, Cincinnati, 1889-92; Pastor Winthrop Church, Boston, 1892-96; Student, Harvard University, 1893-94; Pastor, First Congregational Church, Oakland, since 1896.

HANS FREDERICK BLICHFELDT, Assistant Professor of Mathematics.

College Terrace.

A. B., Leland Stanford Jr. University, 1896; Ph. D., University of Leipzig, 1898.

COLBERT SEARLES, Assistant Professor of Romanic Languages.

1106 Bryant St.

A. B., Wesleyan University, 1896; Ph. D., University of Leipzig, 1899. Instructor in French and Italian, Indiana University, 1899-1900; Associate Professor of English and Modern Languages, University of Arkansas, 1900-01.

RAYMOND MACDONALD ALDEN, Assistant Professor of English Literature and Rhetoric.

455 University Ave.

A. B., University of Pennsylvania, 1894; A. M., Harvard University, 1896; Ph. D., University of Pennsylvania, 1898. Instructor in English, Columbian University, Washington, D. C., 1894-95; Assistant in English, Harvard University, 1896-97; Senior Fellow in English, University of Pennsylvania, 1898-99, Instructor, 1899-1901.

WILLIAM ALPHA COOPER, Assistant Professor of German.

1111 Emerson St.

A. B., Marietta College, 1892. A. M., 1897. Student, Universities of Bonn, Leipzig, and Paris, 1892-94; Instructor in German and French, Marietta College, 1896-99, Professor, 1899-1901.

ANDREW ALLEN BROWNE, Assistant Professor of Mechanic Arts, and Superintendent of Shops.

1010 Bryant St.

Student, University of Michigan, 1888-90; Teacher, Chicago English High and Manual Training School, 1890-97; Machinist Contractor, Monterey, Mexico, 1897-1900; with Mexican Lead Company, 1900-02.

†GEORGE FREDERICK MADDOCK, Assistant Professor of Mechanical Engineering.

637 Gilman St.

A. B., Leland Stanford Jr. University, 1900.

† Resigned November, 1903.

THOMAS ANDREW STOREY, Assistant Professor of Hygiene.
8 Alvarado Row.

A. B., Leland Stanford Jr. University, 1896, A. M., 1900, Ph. D. 1902.

JEFFERSON ELMORE, Assistant Professor of Latin.

543 Middlefield Road.

A. B., Leland Stanford Jr. University, 1895, A. M., 1896, Ph. D., 1901, Principal of Merced County High School, 1896-97; Student, Universities of Bonn and Berlin, 1901-02.

JOHN ELLWOOD BLAIR, Assistant Professor of Law.

4 Lasuen St.

A. B., Mercersburg College, 1891; LL. B., Harvard University, 1898. Student, Boston University Law School, 1894-96; Graduate Student, Harvard Law School, 1898-99; Assistant Dean and Professor of Law, University of North Dakota, 1899-1902.

JOHN OTTERBEIN SNYDER, Assistant Professor of Zoology.

627 Webster St.

A. B., Leland Stanford Jr. University, 1897, A. M., 1899.

ROBERT ECKLES SWAIN, Assistant Professor of Chemistry.

638 Channing Ave.

A. B., Leland Stanford Jr. University, 1899; M. S., Yale University, 1901.

DAVID SAMUEL SNEDDEN, Assistant Professor of Education.

14 Salvatierra St.

A. B., St. Vincent's College, Los Angeles, 1890; A. B., Leland Stanford Jr. University, 1897; A. M., Columbia University, 1901. Principal of Schools, Santa Paula, Cal., 1892-93; Principal of High School, Paso Robles, Cal., 1897-1900.

HARRY ALVIN MILLIS, Assistant Professor of Economics.

461 Addison Ave.

A. B., Indiana University, 1895, A. M., 1896; Ph. D., University of Chicago, 1899. Reference Librarian, John Crerar Library, Chicago, 1899-1902; Professor of Economics and Sociology, University of Arkansas, 1902-03.

GEORGE LOFTUS NOYES, Assistant Professor of Drawing.

Kingsley Ave. and Ramona St.

Art Student, Collorossi and Delacluse Académies, Paris, 1889-93; Exhibitor in Paris Salon, 1892, Society of American Artists, 1896, Boston Art Club, 1893-1902.

JAMES ROLLIN SLONAKER, Assistant Professor of Physiology.

334 Kingsley Ave.

B. S., University of Washington, 1893; Ph. D., Clark University, 1896. Fellow in Biology, Clark University, 1893-96; United States Fish Commissioner, Woods Holl, Mass., summer, 1896; Instructor in Zoology, Indiana University, 1896-99, Indiana University Biological Station, 1896-1900; Assistant Professor of Zoology, Indiana University, 1899-1901; Research Assistant in Neurology, University of Chicago, 1901-02, Associate in Neurology, 1902-03.

CARL COSMO RICE, Assistant Professor of Romanic Languages. *919 Bryant St.*

A. B., University of Texas, 1897, A. M., 1899; A. M., Harvard University, 1900, Ph. D., 1902. Tutor in Latin, University of Texas, 1897-99; Assistant Professor of Romanic Languages and Latin, University of Oregon, 1902-03.

WILLIAM RANKINE ECKART, Assistant Professor of Mechanical Engineering. *Ramona St.*

M. E., Cornell University, 1895. Mechanical Engineer, Siemens Halske Electric Co., Chicago, 1895-96; Constructing Engineer, Allison Branch Mine, Grass Valley, Cal., 1896-98; Testing work for Fraser & Chalmers, in Hawaii and Mexico, 1898-99; with W. R. Eckart, Consulting Engineer, Hydraulic Power Plants and Mining Work, 1899-1903; Consulting Engineer, Geary-St. P. & O. R. R., San Francisco, 1902-04.

JACOB VOORSANGER, Lecturer on the Framework of the Old Testament. *1249 Franklin St., San Francisco.*

Rabbi, Amsterdam, 1873; D. D., Cincinnati, 1894; Rabbi, Temple Emanu-El, San Francisco, since 1886; Professor of the Semitic Languages and Literature, University of California, since 1896.

JOHN EZRA McDOWELL, Assistant Registrar.

A. B., Leland Stanford Jr. University, 1900. *6 Lasuen St.*

JULIUS EMBRET PETERSON, Foreman of the Forge.

660 Homer Ave.

EUGENE SOULE, Foreman of the Manual Training Shop.

633 Lytton Ave.

†CLARA S. STOLTENBERG, Instructor in Physiology.

[Baltimore, Md.]

A. B., Leland Stanford Jr. University, 1896, A. M., 1897.

EDWIN CHAPIN STARKS, Curator in Zoology.

1115 Ramona St.

Assistant in United States Bureau of Biological Survey, 1897-99; Curator of the Museum, University of Washington, 1899-1900.

SAMUEL SWAYZE SEWARD, Jr., Instructor in English.

Cowper St. and Lincoln Ave.

A. B., Columbia College, 1896; A. M., Columbia University, 1897. Scholar in Literature, Columbia University, 1896-97, Assistant in Literature, 1897-99; Student, Oxford University, 1899-1900.

LEE EMERSON BASSETT, Instructor in Elocution.

471 Addison Ave.

A. B., Leland Stanford Jr. University, 1901. Graduate Cumnook School of Oratory, Los Angeles, 1898; Instructor in Public Speaking, University of Southern California, 1898-99; Instructor in Elocution, Long Beach, Cal., summer school, 1898; Student, School of Expression, Boston, 1901.

† Absent on leave, second semester, 1903-04.

WILLIAM JONATHAN NEIDIG, Instructor in English.

8 Alvarado Row.

A. B., Leland Stanford Jr. University, 1896.

*ALVIN JOSEPH COX, Instructor in Chemistry.

[In Europe.]

A. B., Leland Stanford Jr. University, 1901, A. M., 1902.

*CHARLES FREDERICK SCHMUTZLER, Instructor in German.

[In Europe.]

A. B., Leland Stanford Jr. University, 1898, A. M. 1899.

EDWARD KIRBY PUTNAM, Instructor in English.

14 Lasuen St.

A. B., Illinois College, 1891; A. M., Harvard University, 1899. Student, University of Chicago, 1894-96.

JAMES TAYLOR BURCHAM, Instructor in Law.

919 Bryant St.

A. B., Leland Stanford Jr. University, 1897, LL. B., 1901.

HALCOTT CADWALADER MORENO, Instructor in Applied Mathematics.

375 Everett Ave.

A. B., University of Georgia, 1893, A. M., 1894, B. L., 1896; Ph. D., Clark University, 1900. Tutor in Mathematics, University of Georgia, 1893-97; Scholar and Fellow in Mathematics, Clark University, 1897-1900; Assistant in Mathematics, Clark University, 1900-01.

BENJAMIN OLIVER FOSTER, Instructor in Latin.

233 Addison Ave.

A. B., Leland Stanford Jr. University, 1895; A. M., Harvard University, 1897, Ph. D., 1899. Parker Fellow of Harvard University, studying in the American School of Classical Studies in Rome, 1899-1900; Acting Professor of Latin and Greek, State Normal College of Michigan, 1900-01.

ALBERT CONSER WHITAKER, Instructor in Economics.

2 Salvatierra St.

A. B., Leland Stanford Jr. University, 1899; Ph. D., Columbia University, 1904. Scholar in Economics, Columbia University, 1899-1900, Fellow, 1900-01; Student, University of Berlin, 1901-02.

†EDWIN BINGHAM COPELAND, Instructor in Bionomics.

[Manila, P. I.]

A. B., Leland Stanford Jr. University, 1895; Ph. D., University of Halle, 1896. Assistant in Biology, University of Wisconsin, 1893-94, Honorary Fellow in Botany, 1896-97; Assistant Professor of Botany, Indiana University, 1897-98; Teacher of Science, Chico (Cal.) State Normal School, 1899; Professor of Botany, University of West Virginia, 1899-1901.

* Absent on leave, 1903-04.

† Resigned November, 1903.

EDWARD JOHN STANLEY, Instructor in Pattern Making
and Foundry Work. *202 Bryant St.*

Machinist with Pacific Iron Works, San Francisco, 1878-79, Pattern
Maker, 1880-86. Foreman, Pattern Shop, Union Iron Works, San
Francisco, 1886-1901.

JOSEPH GRANT BROWN, Instructor in Physics.

411 Lytton Ave.

A. B., Leland Stanford Jr. University, 1901, A. M., 1903.

ANSTRUTHER ABERCROMBIE LAWSON, Instructor in
Botany. *17 Salvatierra St.*

B. S., University of California, 1897, M. S., 1898; Ph. D., University
of Chicago, 1901. Fellow in Botany, University of Chicago, 1900-01.

ERNEST WHITNEY MARTIN, Instructor in Latin.

727 Cowper St.

A. B., University of Chicago, 1900; A. M., Leland Stanford Jr.
University, 1902. Instructor in Latin and Greek, Private School,
Clarinda, Ia., 1895-96; Principal of High School, 1896-98; Student,
University of Berlin, and American School of Classical Studies,
Rome, 1900-01.

ROBERT EVANS SNODGRASS, Instructor in Entomology.

160 Encina Hall.

A. B., Leland Stanford Jr. University, 1901. Assistant Entomologist,
Washington State Agricultural College, and Experiment Station,
1901-03.

*GEORGE CRAM COOK, Instructor in English.

[Davenport, Ia.]

A. B., University of Iowa, 1892; A. B., Harvard University, 1893.
Fellow in English, University of Iowa, 1892; Student, University of
Heidelberg, 1894, University of Geneva, 1894-95; Instructor in Eng-
lish, University of Iowa, 1895-99.

GEORGE LUTHER CLARK, Instructor in Law.

938 Scott St.

A. B., Kenyon College, 1896; LL. B., Indiana University, 1899.
Student, Harvard Law School, 1900-02.

HALBERT WILLIAM CHAPPELL, Instructor in Hygiene.

12A Lasuen St.

A. B., Leland Stanford Jr. University, 1901, LL. B., 1903.

JAMES BENNETT LIGGETT, Foreman of the Foundry.

424 Lytton Ave.

Apprentice and Foundry Moulder, Falls Rivet and Machine Co.,
Cuyahoga Falls, O., 1883-88, Webster, Camp & Lane, Akron, O.,
1888-93, Bowler & Co., Cleveland, O., 1893-98; Foundry Foreman,
City Foundry Co., Cleveland, O., 1898-99; Foreman, Born Steel
Range Co., Cleveland, O., 1899-1902; Foreman of Foundry, Westing-
house Electric Co., Cleveland, O., 1902.

* Absent on leave, 1903-04.

DORSEY ALFRED LYON, Instructor in Metallurgy.

8 Salvatierra St.

A. B., Leland Stanford Jr. University, 1898; A. M., Harvard University, 1902. Assistant in Chemistry, Leland Stanford Jr. University, 1897-98; Instructor in Geology, University of Washington, 1898-99, Assistant Professor of Mining and Metallurgy, 1899-1900, Professor of Mining and Metallurgy and Dean of the School of Mines, 1900-01; Graduate Student, Harvard University, 1901-02; with United States Smelting Co., Utah, 1902.

WILLIAM ALBERT MANNING, Instructor in Mathematics.

375 Everett Ave.

A. B., Willamette University, 1900; A. M., Leland Stanford Jr. University, 1902.

HENRY LEWIN CANNON, Instructor in History.

219 Addison Ave.

A. B., Western Reserve University, 1893; Ph. D., University of Pennsylvania, 1898. Student, Harvard University, 1893-94, Yale University, 1896-97; Fellow in European History, University of Pennsylvania, 1897-98; Instructor in History, University of Cincinnati, 1900-03.

*ANTHONY HENRY SUZZALLO, Instructor in Education.

[New York City.]

A. B., Leland Stanford Jr. University, 1899; A. M., Columbia University, 1902. Principal of Schools, Alviso, Cal., 1896-97; Principal, Longfellow Grammar School, Alameda, Cal., 1899-1901; Instructor, San Francisco State Normal School, 1902-03.

LE ROY ABRAMS, Instructor in Systematic Botany.

9 Alvarado Row.

A. B., Leland Stanford Jr. University, 1899.

CHLOE LESLEY STARKS, Instructor in Drawing.

1115 Ramona St.

KENNETH LIVERMORE CURTIS, Instructor in Electrical Engineering.

101 Encina Hall.

B. S., University of Colorado, 1901. With General Electric Co., Schenectady, N. Y., 1901-03.

LEWIS ANDREW DARLING, Instructor in Mechanical Engineering.

12A Lasuen St.

B. M. E., Kentucky State College, 1900; Instructor in Mechanical Engineering and Drawing, Nevada State University, 1900-03; with R. K. Le Bland Machine Tool Co., Cincinnati, summer, 1900; with Engineering Dept., S. P. R. R., Sacramento, Cal., summer, 1902; with Eureka Hydro-Carbon Co., San Francisco, summer, 1903.

SUSAN BROWN BRISTOL, Secretary of Committee on Recommendation of Teachers.

1 Salvatierra St.

A. B., Leland Stanford Jr. University, 1897.

* Absent on leave, 1903-04.

PEHR HJALMAR OLSSON-SEFFER, Assistant in Systematic
Botany. *199 Encina Hall.*
Universities of Helsingfors and Upsala.

WALTER CLARK, Assistant to the Secretary.
633 Hamilton Ave.
A. B., Leland Stanford Jr. University, 1899.

JANE CARROLL BYRD, Assistant in English.
15 Salvatierra St.
A. B., Leland Stanford Jr., University, 1904.

HELEN MAY HOGUE, Assistant in German.
334 Cowper St.
A. B., Leland Stanford Jr. University, 1901.

STANLEY SMITH, Assistant in Romanic Languages.
Redwood City.
A. B., Leland Stanford Jr. University, 1903.

JOHN PEARCE MITCHELL, Assistant in Chemistry.
951 Bryant St.
A. B., Leland Stanford Jr. University, 1903.

WILLIAM HENRY SLOAN, Assistant in Chemistry.
627 Waverly St.
A. B., Leland Stanford Jr. University, 1903.

ROBERT WILLIAM DODD, Assistant in Chemistry.
431 Kipling St.
A. B., Leland Stanford Jr. University, 1903.

FLORENCE JULIA ROSS, Assistant in Chemistry.
1 Alvarado Row.

WILLIAM ELMER CRAWFORD, Assistant in Chemistry.
171 Encina Hall.

ETHEL WINONA GRAVES, Assistant in Chemistry.
2 Roble Hall.
A. B., Leland Stanford Jr. University, 1903.

CARLTON CHENEY JAMES, Assistant in Chemistry.
235 Emerson St.

JOHN FRANCIS COWAN, Assistant in Physiology.
10 Lasuen St.
A. B., Leland Stanford Jr. University, 1902.

M CHITARO SINDO, Assistant in Physiology.

Encina Hall.

MARY ISABEL McCracken, Assistant in Physiology and
Bionomics.

10 Salvatierra St.

A. B., Leland Stanford Jr. University, 1904.

STELLA ROSE, Assistant in Hygiene.

8 Lasuen St.

A. B., Leland Stanford Jr. University, 1900.

WALTER KENRICK FISHER, Assistant in Zoology.

821 Waverly St.

A. B., Leland Stanford Jr. University, 1901.

ALBERT CHRISTIAN HERRE, Assistant in Zoological Mu-
seum.

Mayfield.

A. B., Leland Stanford Jr. University, 1904.

WARREN DU PRÉ SMITH, Assistant in Blowpipe Analysis.

1035 Bryant St.

B. S., University of Wisconsin, 1902.

JOHN FLETCHER BYXBEE, JR., Assistant in Civil En-
gineering.

347 Alma St.

A. B., Leland Stanford Jr. University, 1902.

ELMER GEORGE BRUA, Assistant in Civil Engineering

169 Encina Hall.

NORMAN COLLYER, Assistant in Civil Engineering.

12A Lasuen St.

HUBERT HARRY HALL, Assistant in Civil Engineering.

1 Lasuen St.

THOMAS BENTON HUNTER, JR., Assistant in Civil En-
gineering.

12 Salvatierra St.

ROBERT HUGHES GAITHER, Assistant in Mechanical En-
gineering.

Mayfield.

FRANK OAKES ELLENWOOD, Assistant in Electrical En-
gineering.

326 Lytton Ave.

ROYCE REED LONG, Assistant in Encina Gymnasium.

96 Encina Hall.

VERA TOWNSEND, Assistant in Roble Gymnasium.

Palo Alto.

A. B., Leland Stanford Jr. University, 1901.

HELEN KATE NORTH, Assistant in Roble Gymnasium.

1 Alvarado Row.

CECELIA FREEMAN ATHERTON, Assistant to the Department of Education.

11 Roble Hall.

DAVID TIMMINS FULLAWAY, Assistant to the Registrar.

333 Kipling St.

CHARLES BENJAMIN MORSE, Assistant to the Secretary.

523 Cowper St.

MARY ADELINE CUTTER, President's Stenographer.

16 Roble Hall.

FLORENCE HUGHES, Cataloguer.

1248 Waverly St.

LILLIAN PEARLE GREEN, Classifier in the Library.

5 Lasuen St.

A. B., Leland Stanford Jr. University, 1898.

ALICE NEWMAN HAYS, Assistant in the Library.

11 Salvatierra St.

A. B., Leland Stanford University, 1896.

HARROLD TRADER, Assistant in the Library.

16 Salvatierra St.

A. B., Leland Stanford Jr. University, 1902.

MARTHA ELIZABETH HAVEN, Assistant in the Library.

9 Salvatierra St.

A. B., Leland Stanford Jr. University, 1896.

BELLE HEBER THOMPSON, Assistant in the Library.

327 Hamilton Ave.

ALBERT BERNARD CHEADLE, Assistant in the Library.

168 Encina Hall.

BENJAMIN CLIFFORD DEY, Assistant in the Library.

12A Lasuen St.

ELIZABETH HADDEN, Assistant in the Library.

Palo Alto.

ANNA GERTRUDE HALL, Assistant in the Library.
536 Ramona St.

IDA MAY PETERSON, Assistant in the Library.
16 Alvarado Row.

OMAR CORWIN SPENCER, Assistant in the Library.
9 Encina Hall.

ROY PEARL THORPE, Assistant in the Library.
Emerson St.

RAYMOND GRIFFIN BARNETT, Assistant in the Library.
6 Salvatierra St.

HELEN WATERMAN ROLFE, Stenographer in the Library.
363 Melville Ave.

GEORGE MARTINSON, Assistant in the Law Library.
420 Everett Ave.

B. S., Kansas State Agricultural College, 1901.

BENJAMIN PALMER OAKFORD, Assistant in the Law Library.
120 Emerson St.
A. B., Leland Stanford Jr. University, 1902, LL. B., 1903.

HARRY C. PETERSON, Curator of the Leland Stanford Junior Museum.
660 Homer Ave.

HARRIET STRINGER BLYNN, Matron of Roble Hall.
Roble Hall.

CHARLES G. LATHROP, Treasurer of the University.
Alta Vista.

F. G. PHILLIPS & CO., Auditors.
Mills Building, San Francisco.

A. C. LASSEN, Cashier.
Encina Hall.

SAMUEL H. RICH, Bookkeeper and Voucher Clerk.
San Francisco.

J. C. CROOKS, Bookkeeper.
Palo Alto.

B. P. SHARON, Stenographer.

San Mateo.

P. Q. ATKINSON, Custodian.

Stanford University.

CHARLES EDWARD HODGES, Resident Architect.

Pine Cottage.

With N. S. Joseph & Pearson, Architects, London, 1884-88; Student,
Westminster and South Kensington Architect Schools, 1884-88;
Draughtsman to Shepley, Rutan & Coolidge, Architects, 1888-91;
Member American Institute of Architects, Washington, D. C., Sep-
tember, 1900.

VINCENT KROLOW, Draughtsman to the Architect.

College Terrace.

C. P. HUGHES, Chief Engineer.

Palo Alto.

J. MCGLYNN, Assistant Engineer.

Menlo Park.

R. A. STEVENS, Electrician.

Palo Alto.

GEORGE ADDERSON, Overseer of Buildings.

Encina Hall.

E. R. EWELL, Custodian of Chemistry Building.

623 Middlefield Road.

WALTER UHLMAN, Custodian of the Mechanical Laboratory.

420 Emerson St.

WILLIAM WHEELER HENLEY, Laboratory Mechanician.

Mayfield.

T. B. SCOTT, Storekeeper of the Chemical Laboratory.

Mayfield.

CHARLES F. MOORE, University Plumber.

Menlo Park.

M. H. DORGAN, University Plumber.

Mayfield.

CHARLES C. WALLEY, University Carpenter.

Mayfield.

ADMINISTRATIVE OFFICERS

THE UNIVERSITY

President: DAVID STARR JORDAN.
Vice-President: JOHN CASPER BRANNER.
Registrar: ORRIN LESLIE ELLIOTT.
Librarian: MELVIN GILBERT DODGE.*
Secretary: GEORGE ARCHIBALD CLARK.

DEPARTMENT COUNCILS

(Senior Professors)

Greek: AUGUSTUS TABER MURRAY.
Latin: HENRY RUSHTON FAIRCLOUGH.
Germanic Languages: JULIUS GOEBEL.
Romanic Languages: JOHN ERNST MATZKE.
English Literature and Rhetoric: MELVILLE BEST ANDERSON.
English Philology: EWALD FLÜGEL.
Philosophy: FRANK ANGELL.*
Psychology: FRANK ANGELL.
Education: ELLWOOD P. CUBBERLEY.
History: MAX FARRAND.
Economics and Sociology: SIMON JAMES McLEAN.*
Law: NATHAN ABBOTT.
Drawing and Painting: ARTHUR BRIDGMAN CLARK.
Mathematics: ROBERT EDGAR ALLARDICE.
Physics: FERNANDO SANFORD.
Chemistry: JOHN MAXSON STILLMAN.
General Botany: DOUGLAS HOUGHTON CAMPBELL.
Systematic Botany: WILLIAM RUSSELL DUDLEY.
Hygiene and Organic Training: WILLIAM FREEMAN SNOW.*
Physiology and Histology: OLIVER PEEBLES JENKINS.
Zoology: CHARLES HENRY GILBERT.
Entomology: VERNON LYMAN KELLOGG.
Geology and Mining: JOHN CASPER BRANNER.
Civil Engineering: CHARLES DAVID MARX.
Mechanical Engineering: ALBERT WILLIAM SMITH.
Electrical Engineering: ALBERT WILLIAM SMITH.*

* Acting.

STANDING COMMITTEES

The Vice-President is ex-officio Chairman of the Committee on Ways and Means and Acting President during the absence of the President.

The Registrar is ex-officio Chairman of the Committees on Admission and Advanced Standing, Registration, Graduation, and Recommendation of Teachers.

Ways and Means: BRANNER, STILLMAN, C. D. MARX, MURRAY, CAMPBELL, ANDERSON.

Student Affairs: GREEN, GRIFFIN, BRANNER, JENKINS, LENOX.

Admission and Advanced Standing: ELLIOTT, MATZKE, CUBBERLEY, HOSKINS, FARRAND.

Scholarship: GILBERT, MURRAY, HOSKINS, PEIRCE, ELLIOTT.

Registration: ELLIOTT, FISH, CUBBERLEY, HEATH, SNOW.

Graduation: ELLIOTT, JENKINS, STILLMAN, ANDERSON, ABBOTT.

Graduate Study: FLÜGEL, BRANNER, GOEBEL, SANFORD, DUDLEY, MURRAY, ANGELL.

Library: STILLMAN, C. D. MARX, FLÜGEL, FARRAND, SHOW, DODGE.

University Publications: KELLOGG, ALLARDICE, J. P. SMITH, ADAMS, MCFARLAND.

Athletics: ANGELL, KELLOGG, A. W. SMITH, SEARLES, SNOW.

Public Exercises, Lectures, and Social Affairs: NEWCOMER, STILLMAN, G. A. CLARK, FAIRCLOUGH, NEWSOM.

Students' Assemblies: FARRAND, ROLFE, FRANKLIN, the President of the Student Body, the President of the Senior Class.

Health Affairs: SNOW, GILBERT, PUTNAM.

Literary Contests: DUNIWAY, ALDEN, MCLEAN, ADAMS, BASSETT.

Recommendation of Teachers: ELLIOTT, CUBBERLEY, GOEBEL, JENKINS, SHOW.

Musical Matters: YOUNG, MARX, SEARLES, CAMPBELL, MILLER.

Resolutions: ANDERSON, FAIRCLOUGH, ALLARDICE, MCFARLAND, ALDEN.

Academic Usages: A. W. SMITH, PEIRCE, NEWCOMER, A. B. CLARK, MILLER.

Legal Matters: ABBOTT, LEWERS, DUNIWAY, MCLEAN, SANFORD.

Student Employment: GRIFFIN, NEWSOM, MARTIN, HEATH.

Hopkins Laboratory: HEATH, JENKINS, GILBERT, PEIRCE, MCFARLAND.

ORGANIZATION

Foundation

The founding, at Palo Alto, of "a university for both sexes, with the colleges, schools, seminaries of learning, mechanical institutes, museums, galleries of art, and all other things necessary and appropriate to a university of high degree," was determined upon by the Hon. Leland Stanford and Jane Lathrop Stanford, in 1884. In March of the year following the Legislature of California passed an Act providing for the administration of trust funds in connection with institutions of learning. November 14, 1885, the Grant of Endowment was publicly made in accordance with this Act, and on the same day the Board of Trustees held its first meeting, in San Francisco. The work of construction was at once begun, and the cornerstone laid May 14, 1887, the nineteenth anniversary of the birth of Leland Stanford, Jr. The University was formally opened to students October 1, 1891.

Name and Purpose

"Since the idea of establishing an institution of this kind, for the benefit of mankind, came directly and largely from our son and only child, Leland, and in the belief that had he been spared to advise as to the disposition of our estate, he would have desired the devotion of a large portion thereof to this purpose, we will that for all time to come the institution hereby founded shall bear his name, and shall be known as The Leland Stanford Junior University."

The object of the University is "to qualify students for personal success and direct usefulness in life"; its purposes, "to promote the public welfare by exercising an influence in behalf of humanity and civilization, teaching the blessings of liberty regulated by law, and inculcating love and reverence for the

great principles of government as derived from the inalienable rights of man to life, liberty, and the pursuit of happiness."

Location

The University is located on the Palo Alto estate in the Santa Clara Valley, thirty-three miles southeast of San Francisco, on the Coast Division of the Southern Pacific Railway. The estate consists of about nine thousand acres, partly level and partly rising into the foothills of the Santa Cruz Range. On the grounds are the residence of the founders and an extensive arboretum containing a great variety of shrubs and trees. The Bay of San Francisco lies about three miles east of the University buildings, and across the bay the Monte Diablo Range rises to the height of over four thousand feet. The Lick Observatory, crowning Mount Hamilton, the highest of the range, is plainly visible. To the southwest, between the valley and the ocean, is the heavily wooded Santa Cruz Range, two thousand to four thousand feet in height.

The Santa Clara Valley is one of the most attractive portions of the State in climate, in natural beauty, and in the fertility and adaptiveness of its soil to all the varied fruits of California. The characteristics of the climate are its evenness of temperature, its pure and bracing air, and its freedom alike from the fogs and harsh winds of the coast and from the oppressive summer heat of the interior valleys. In winter the mercury rarely falls below 30°, and the average midday temperature is about 55°; in summer the average midday temperature is between 70° and 80°, while the nights are always cool. The rainfall, of about fifteen inches, is chiefly confined to the months from December to April, inclusive.

Endowment

The landed endowment of the University, in addition to the Palo Alto estate, consists of the Vina estate, in Tehama County, of fifty-nine thousand acres; the Gridley estate, in Butte County, of twenty-two thousand acres; and various tracts of minor importance. The Stanford residence in San Francisco has also been deeded to the University. The main part of the University endowment, included in recent gifts of Mrs. Stanford, consists of interest-bearing securities.

Buildings

The central group of buildings constitutes two quadrangles, one surrounding the other. The INNER QUADRANGLE, with the exception of the Memorial Church, was completed in 1891. Its twelve one-story buildings and Memorial Church are connected by a continuous open arcade, facing a court 586 feet long by 246 feet wide, or three and a quarter acres. The buildings are of buff sandstone, somewhat varied in color. The stonework is of broken ashlar, with rough rock face, and the roofs are covered with red tile. The architectural *motif* is to be found in the old Spanish Missions of California.

The OUTER QUADRANGLE was begun in 1898, the Assembly Hall, Library, and Memorial Arch being completed in 1899, and the Treasurer's Office in 1902. The buildings devoted to Physiology, Zoology, Botany, English, History, Economics, Psychology, and Physics were occupied in 1903. The remaining buildings, five in number, are now in process of construction and will be completed in 1904. The main buildings of the outer quadrangle are two stories in height above the basement, and constructed of the same material and in the same general style as the inner quadrangle. The principal façade consists of the Memorial Arch in the center with a group of three buildings on either side, the whole connected by a continuous open arcade 894 feet in length.

The MEMORIAL ARCH, forming the central feature of the principal façade of the University, is 100 feet in height, 90 feet wide, and 34 feet in depth. The archway is 44 feet wide and 51 feet high. A sculptured frieze twelve feet in height, designed by Augustus St. Gaudens, and representing the "Progress of Civilization in America," surrounds the arch. Above this frieze is a corbelled arch course terminating in the parapet wall four feet above the flat fireproof roof. A circular iron stairway leads from the ground level to the roof.

The ASSEMBLY HALL, the first building east of the Memorial Arch, has a frontage of 108 feet, and a seating capacity of seventeen hundred. The stage is 36 x 28 feet, with two dressing-rooms on each side. The stage and auditorium are lighted by two large ornamental dome skylights.

The Thomas Welton Stanford LIBRARY BUILDING occupies the

central portion of the eastern half of the front façade in the outer quadrangle. It has a frontage of one hundred and sixty feet, and the extreme width, including ell, is one hundred and fifty-eight feet. The stack room, which forms the ell, is 70 x 74 feet. The main reading-room, lighted by a circular dome of stained glass forty feet in diameter, has a seating capacity of two hundred and twenty. On the first floor are also the cataloguing-room, reference libraries, and offices; on the second floor are six seminary rooms.

The LELAND STANFORD JUNIOR MUSEUM, a concrete building, 540 x 156 feet, including wings, is situated a quarter of a mile from the quadrangles, and on the west side of the Palo Alto Avenue. The Museum contains the archæological and art collections of the University. Extensive additions to the Museum are in process of construction.

The CHEMISTRY building, completed in 1902, is located between the quadrangles and the Museum. It consists of two separate structures—the main Chemistry building and the Assaying Laboratory. The main building is 235 feet in length and 100 feet in width at the wings, and consists of two stories with basement and attic. The Assaying Laboratory is a one-story building, 115 x 30 feet, in the rear of the main building, and separated from it by an inclosed court.

Behind the central quadrangles are placed the workshops of the engineering departments, experimental laboratories, power-houses, etc.

The dormitories are east and west of the quadrangle. ENCINA HALL, for young men, is at the east, and occupies a ground area of 312 x 150 feet. It is four stories high, built of the same material as the quadrangle, and decorated with end arcades, a central arched porch, and mosaic work. It is provided with electric lights, hot and cold water, steam heat, suitable furniture, bathrooms on each floor, and has accommodations for three hundred students. ROBLE HALL, for young women, is at the west. It is of concrete, is about a third the size of Encina Hall, and will accommodate one hundred students. MADROÑO HALL is a frame building, at present leased to private parties, but receiving only women students. It will accommodate about thirty students.

ENCINA GYMNASIUM and ROBLE GYMNASIUM are substantial frame buildings, equipped with the necessary apparatus and appliances for physical training. A new Gymnasium for men, to be constructed of stone and equipped with all modern conveniences and appliances, was begun in 1902.

The UNIVERSITY INN is a frame building, just east of the quadrangle, erected in 1898. It is intended primarily as a University commons for students living on the campus.

The grounds immediately about the University have been reserved, in part for experimental and ornamental purposes, and in part as residence sites for members of the Faculty and others who may desire to live on the University campus. Over forty cottages have already been erected.

Scientific Collections

It is intended to bring together in the museums of the University a full representation of the natural history and mineral products of California, collections of all books, pamphlets, photographs, and maps bearing upon the early history of the West, and full collections of Indian antiquities and illustrations of aboriginal life. It is desired to receive donations from all persons who are interested in the work and who have material of value to the museums. Collections sent in this way will be carefully labeled and preserved, and the name of the donor will be kept on record. Messrs. Wells, Fargo & Co. generously offer to transport such gifts to the University free of charge, and have instructed their officials to "receive and promptly forward such offerings as may be tendered from time to time."

Trustees

The general management and control of the institution is vested in a board of trustees originally numbering twenty-four and chosen for life. By a modification of the charter, effected by the surviving founder in 1897, the number of trustees was reduced to fifteen, with future appointments for a term of ten years. The charter provided that the founders, during their lives, shall "perform all the duties and exercise all the powers and privileges enjoined upon and vested in the trustees." An Act of the Legislature, passed March, 1903, authorized the

surviving founder to turn over to the trustees during her lifetime the full management and control of the University, and this transfer was duly made July 6, 1903.

Faculty and Council

The Faculty consists of the president, professors, associate professors, assistant professors, and instructors, aided by non-resident lecturers, assistants, and other officers. Its routine work is divided among various committees, responsible primarily to the president.

The University Council consists of the president, professors, and associate professors. To the Council are intrusted the determination of requirements for admission and for the various degrees, and the recommendation of candidates for graduation. It also acts as an advisory body on any questions of general policy that may be submitted to it by the president or trustees.

Conduct of Students

In the government of the University the largest liberty consistent with good work and good order is allowed. Students are expected to show both within and without the University such respect for order, morality, personal honor, and the rights of others as is demanded of good citizens. Failure to do this will be sufficient cause for removal from the University.

The primary purpose of the University, as set forth by its founders, is to train young men and young women "for personal success and direct usefulness in life." "Success" and "usefulness," as here understood, involve character and effectiveness; and the resources of the University are directed toward the development of these qualities, so that every graduate may be prepared to do some useful thing honestly and effectively. Each student, therefore, is expected and encouraged to work toward some definite end in the choice of his studies. Students unable or unwilling to do serious work, looking toward a definite end, are not welcomed and will not be retained in the University.

Student Organizations

The general direction of student interests, including athletics, musical organizations, intercollegiate debating, etc., is intrusted to the Associated Students. Numerous general stu-

dent organizations have been formed for mutual assistance and improvement in various lines. The Young Men's Christian Association and the Young Women's Christian Association hold devotional meetings and carry on courses of Bible Study throughout the year. During the opening week of the first semester the Associations maintain an Information Bureau for the accommodation of new students. In conjunction with the Faculty Committee on Health Affairs, the Associations compile each year a list of rooming and boarding-houses which have been inspected and approved. Under the general direction of the Faculty Committee, they also manage the Student Employment Bureau. Two college journals, the *Daily Palo Alto* and fortnightly *Sequoia*, are published by the Associated Students. The *Chaparral* is published twice a month, under the auspices of the Press Association. The *Quad* is an annual, published by the Junior Class. The *Alumnus* is published fortnightly by the Alumni Association.

Departments

The work of the University is grouped under the following departmental heads: Greek, Latin, Germanic Languages, Romanic Languages, English Literature, English Philology, Philosophy, Psychology, Education, History, Economics and Social Science, Law, Drawing, Mathematics, Physics, Chemistry, General Botany, Systematic Botany, Physiology and Histology, Hygiene, Zoology, Entomology and Bionomics, Geology and Mining, Civil Engineering, Mechanical Engineering, Electrical Engineering.

The Department Council consists of all professors, associate professors, and assistant professors in the department. Of this Council, a Senior Professor, designated by the president, acts as presiding and administrative officer. The title of Senior Professor has reference only to the administration of the department itself and bears no relation to general University affairs.

The Hopkins Laboratory of Natural History, located at Pacific Grove, on the Bay of Monterey, is a branch of the biological work of the University.

ADMISSION TO THE UNIVERSITY

I. TO UNDERGRADUATE STANDING

Candidates must be at least *sixteen* years of age. They must present certificates of good moral character, and, if from other colleges or universities, must bring letters of honorable dismissal.

Preparation for undergraduate standing implies the completion of a full four years' high school course, or its equivalent.

Fifteen credits are required for admission in full undergraduate standing, each credit representing one full year's work in the high school, with daily recitations, two laboratory periods being regarded as the equivalent of one recitation period. These fifteen credits may be made up of English composition (two credits) and such other subjects (aggregating thirteen credits) as may be selected by the candidate from the list given below, except that subject 23 may not be offered with either subject 10 or subject 11.

ENTRANCE SUBJECTS

- | | |
|---|------------------------------------|
| 1. English Composition (2) | 15. English History (1) |
| 2. Elementary Algebra ($1\frac{1}{2}$) | 16. American History (1) |
| 3. Plane Geometry (1) | 17. English Literature (1, 2) |
| 4. Solid Geometry ($\frac{1}{2}$) | 18. Spanish (2, 3) |
| 5. Trigonometry ($\frac{1}{2}$) | 19. French (2, 3) |
| 6. Adv. Algebra ($\frac{1}{2}$, 1, $1\frac{1}{2}$) | 20. German (2, 3, 4) |
| 7. Physics (1) | 21. Latin (2, 3, 4) |
| 8. Chemistry (1) | 22. Greek (2, 3) |
| 9. Physiology (1) | 23. Biology (1) |
| 10. Botany (1) | 24. Physiography (1) |
| 11. Zoology (1) | 25. Mechanical Drawing (1) |
| 12. Freehand Drawing (1) | 26. Woodworking ($\frac{1}{2}$) |
| 13. Ancient History (1) | 27. Forge Work ($\frac{1}{2}$) |
| 14. Mediæval and Modern History (1) | 28. Foundry Work ($\frac{1}{2}$) |
| | 29. Machine Shop Work (1) |

Twelve credits are accepted for admission in partial standing; except that on account of the limitation upon the number of women students, women are not received in partial standing.

Entrance credits may be obtained (A) on examination at the University (see pp. 54-55), or (B) wholly or in part without examination (see pp. 55-58).

The following will indicate the preparation necessary in the various subjects:

1. English Composition

The ability to write exercises not only free from marked deficiencies in spelling, punctuation, sentence structure, and paragraphing, but also proving the candidate's ability to think consecutively on a simple subject. Such subjects, as set at the time of the examination, will be drawn for the most part from the candidate's own experiences.

The work in English composition should be given at least two recitations a week throughout the entire high school course. The greater part of this time should be devoted to practice in writing, but it is recommended that some attention be also paid to instruction in the fundamental principles of formal rhetoric.

(2 credits)

A candidate admitted to the University in regular standing without fulfilling the requirement in English Composition will be given an opportunity at the end of his first semester to make good his deficiency. Failing to pass this examination he will be required to enter at once a special class in English Composition and to remain in it until his work is judged to be of passing grade.

[Concerning time of examination, see p. 54; substitutes for examination, p. 56, B, II, 4a; exemption from examination, p. 55, B, I, 1, 3.]

2. Elementary Algebra

Algebra through quadratic equations: including the fundamental laws, the laws of exponents for positive and negative integers, formulas of multiplication, the binomial theorem for a positive integral exponent, the transformation of fractions, factoring, common divisors and multiples, radicals,

simultaneous equations of the first degree, quadratic equations, the formation of equations with given roots, theory of quadratic equations, and the solution of problems involving the various classes of equations.

Emphasis should be placed upon the methods of factoring, and the solution of equations. Facility and accuracy in the manipulation of algebraic expressions should be attained, as well as an understanding of the meaning of the various operations. The solution of a large number of moderately difficult problems is preferable to the solution of a smaller number of more difficult ones; while the frequent use of problems involving literal expressions serves to impress upon the pupil the generality of algebraic results. (*1½ credits*)

3. Plane Geometry

In the teaching of geometry stress should be placed upon accuracy of statement as well as upon strict reasoning. This end may be promoted by requiring original propositions to be written out in full in a neat and accurate manner. Emphasis should be placed upon clear thinking rather than upon the acquirement of geometrical knowledge.

The requirement in plane geometry includes problems in mensuration of plane figures and original propositions, as well as the usual demonstrated theorems. The following topics are included: the general properties of plane figures; the circle, and the measure of angles; areas; regular polygons, and the measure of the circle. (*1 credit*)

4. Solid Geometry

The topics included are: relations of lines and planes to space; the properties of prisms, pyramids, cylinders, and cones; the sphere and spherical triangle; also the mensuration of solids, and original propositions. (*½ credit*)

5. Trigonometry

This subject includes the general formulas of plane trigonometry; the theory of logarithms and the use of logarithmic tables; applications to the numerical solution of triangles and of simple problems in heights and distances.

(*½ credit*)

6. Advanced Algebra

a. Simultaneous quadratic equations and equations solved like quadratics; fractional indices; fractional and irrational equations; the extraction of roots of polynomials; arithmetic, geometric, and harmonic series; permutations and combinations. ($\frac{1}{2}$ credit)

b. An additional credit or half credit may be given in Advanced Algebra for a suitable amount of work upon a connected group of the topics usually included under the heading of advanced or higher algebra. ($\frac{1}{2}$ to 1 credit)

7. Physics

The equivalent of one year's work in the high school including both laboratory and text-book work. It is preferred that at least one-half the time be given to laboratory work in which the students perform individually such experiments as are described in the better class of laboratory manuals of which Hall and Bergen's Physics may be named as an example. Accurate notes of the laboratory work should be kept. The text-book study should cover the ground of some modern text, of which Crew's Physics is a good example.

The desired preparation, both in laboratory and text-book work, is fairly represented by Sanford's Elements of Physics. (1 credit)

8. Chemistry

Beside the usual text-book and recitation work, each student must have a laboratory course in which he performs the experiments for himself. Accurate notes of the laboratory work should be kept. The necessary amount of laboratory work cannot be obtained in less than four hours per week for one school year, in addition to the classroom work. It is preferred that the laboratory work be entirely devoted to illustration of the important facts and principles of general chemistry, rather than partly to analytical chemistry. (1 credit)

Students who receive entrance credit on recommendation, and who wish to continue the study of chemistry in the

University, will be admitted at once to the second half of course *a*, and will be required to begin course *i*.

9. Physiology

The elements of human physiology and hygiene, the equivalent of Martin's Human Body. The text-book work should be accompanied by experiment, dissection of animals and organs, and a certain amount of study of the tissues with the microscope.

Candidates who have taken only the work in elementary physiology and hygiene done in the grammar or intermediate grades are not prepared to offer the subject for entrance credit. The elementary physiology and hygiene of the grammar grades, in this regard, is in the same category as are the other subjects studied in the grammar grades, such as arithmetic and geography, which are assumed as preliminary to the subjects offered for entrance. (*1 credit*)

10. Botany

The requirements outlined by the College Entrance Examination Board (based on the report of the Committee on Botany of the Science Department of the National Educational Association, modified by a committee of the Society for Plant Morphology and Physiology) may be taken to represent approximately what is expected of the candidate for entrance credit in Botany. These requirements call for a full year's work, of which it is expected that at least two-thirds shall be genuine laboratory work. One-half of the year is to be devoted to the general principles of morphology, physiology, and ecology. In this work proper account should be taken of the lower plants as well as of the flowering plants. The second half-year is devoted to a study of the natural history of representatives of the larger groups of plants, and the principles of classification. This study is expected to include representatives of the algæ, fungi, mosses, ferns, and the principal types of flowering plants. If it seems desirable, the order of the two half-years' work may be reversed or combined in a different way. (Stevens's Introduction to Botany (Heath & Co., 1902) may be mentioned as indicating the scope of the work.)

In preparing to meet the requirements in botany, the main thing to be had in mind is that the work shall be of a practical nature; that is, that the study be done mainly from specimens and not from books. It must be borne in mind that botany is a department of biology, and means something more than the mere collecting and naming of specimens. A study of the growth and development of the forms selected is of the highest importance, and, so far as possible, should be made a prominent feature in the work.

If possible, the student should be allowed the use of a compound microscope; but when this is not practicable, microscopic demonstrations by the instructor are indispensable. The laboratory work of the students may be supplemented by such explanatory and text-book work as may be deemed necessary; but this must be understood to supplement and not to replace the laboratory work.

Notes and drawings should be neatly made in blank-books of moderate size. The paper for the drawings should be white, unruled, hard, smooth but not glazed. A hard pencil should be used in drawing, and accuracy and neatness are both to be emphasized. The descriptive notes should not be written upon the same sheets as the drawings, and should be clear and concise, including only what the student has himself seen. Notes taken from lectures or reading should be kept entirely apart from the student's own observations.

No credit will be given for an herbarium. The time necessary to prepare an herbarium may be better devoted to a study of the living plants. (1 credit)

II. Zoology

The candidate should possess a knowledge of the structure and relationships of a series of animals, gained primarily through the study of living forms and the dissection of specimens in the laboratory. At least four hours per week for one school year should be spent in actual laboratory work, which should include a study of the following forms, or their equivalents: amoeba, paramoecium, hydra, starfish, sea-urchin, earth-worm, crayfish, grasshopper, clam, slug, squid, dogfish, pigeon, rabbit. The dissections should be made in as much detail as is indicated in Marshall and

Hurst's Practical Zoology, which is recommended as a laboratory manual. Laboratory notebooks, certified by the instructor, must be submitted as evidence of the nature of the work, and must contain a full series of drawings and notes based on original dissections made by the student.

The practical work indicated above should be supplemented by such lectures or reading as will furnish a comprehensive knowledge of the groups studied. As a general reference book Parker and Haswell's Text-book of Zoology (Macmillan & Co., 1897) is recommended. (1 credit)

12. Freehand Drawing

The candidate should be able to draw something well, showing familiarity with the technical principles involved. This should include as follows:

1. Enough perspective knowledge to foreshorten and draw correctly, from nature, the corner of a room, or a table top with boxes or other articles it may contain. (Extensive knowledge of the theory is not required.)

2. Visual sensitiveness to textures of various objects, and to proportions and character of curves, in objects, in leaf sprays, in birds' wings, etc.

3. The ability to interpret form by light and shade. Special attention should be given to the effect of light and shade, as a whole, on a group consisting of two or three colored objects, such as dishes, books, vegetables, machine parts; also, to the translation of color values into light and shade.

The style of the drawing should be direct, facile, and effective, adapted to the thing drawn, refinement in its proper place and vigor in its proper place. The required skill may be attained in two hundred and forty hours of well-directed practice. A group of objects is usually given as a test, but, if the candidate prefers, a cast, or a head from life, or a machine, may be substituted.

The candidate should provide his own materials for the examination: the paper, and pen, or pencil, or charcoal which he is accustomed to use.

Candidates acceptably recommended in this subject should present as many drawings as possible, duly certified, and

accompanied by a statement from the teacher as to the amount and kind of instruction given. (1 credit)

13-16. History

All candidates for credit in entrance history must submit evidence of considerable work done in addition to the text-book preparation. For the sake of the training involved, as well as for the information acquired and the stimulating of interest, the following exercises are recommended: supplementary reading, including the use of original material where possible; notes and digests of reading; abstracts or analyses of specified chapters, both of the text-book and supplementary reading; outlines of subjects, gathering material from all available sources; map drawing from printed data or comparison of existing maps, showing movements of exploration, migration or conquest, territorial changes, or social phenomena.

Such work should be regarded as a means rather than the end of historical study, and in every instance should be adapted in character and amount to the stage of advancement of the class and of the individual pupil. As the pupil progresses in his study, more advanced work may well be required in the form of historical composition, and of note-taking in the class from talks by the teacher or reports of fellow pupils.

The evidence of such work must be presented in the form of a note-book or bound collection of notes, containing all exercises prepared upon any of the four history subjects arranged in order of their assignment and certified and approved by the teacher. In the case of schools whose recommendations are accepted in place of the examinations, a detailed statement by the teacher as to the character, amount, and quality of the work of each candidate may be submitted in place of the note-book itself.

13. Ancient History

Text-books: *The Oriental Nations*—Myers, General History, pp. 1-86; or West, Ancient History, pp. 1-75; or Adams, European History, pp. 1-16; or an equivalent. *Greece*—Botsford, History of Greece; or Myers, History of Greece; or

Morey, Outlines of Greek History; or Oman, History of Greece; or West, Ancient History; or the equivalent. *Rome*—Botsford, History of Rome; or Myers, Rome; or West, Ancient History; or Morey, Outlines of Roman History; or an equivalent.

For supplementary reading and reference: Botsford, Story of Rome; "Epochs of Ancient History" Series; Wolfson, Essentials in Ancient History; Cox, General History of Greece (Student Series); Pelham, Outlines of Roman History; Abbott, Roman Political Institutions; Shuckburgh, History of Rome; Ginn & Co.'s Classical Atlas, or Kiepert, Classical Atlas; Tozer's Primer of Classical Geography; see, also, Historical Sources in Schools. (*1 credit*)

14. Mediæval and Modern History

Text-books: Myers, Mediæval and Modern History; or Robinson, History of Western Europe; or the equivalent.

For supplementary reading and reference: Duruy, History of the Middle Ages; Adams, Civilization During the Middle Ages; Bémont and Monod's Mediæval Europe; Fyffe, History of Modern Europe (Popular Edition); Seignobos, Political History of Europe since 1814; the "Epochs" Series; University of Pennsylvania, Translations and Reprints; Fling, Studies in European History; and Putzger, Historischer Schul-Atlas; see, also, Historical Sources in Schools. (*1 credit*)

15. History of England

Text-books: Andrews, History of England; or Coman and Kendall, History of England; or Gardiner, Student's History of England; or Ransome, Advanced History of England; or Larned, History of England; or Oman, History of England; or Wrong, History of the British Nation; or Terry, History of England; or an equivalent.

For supplementary reading and reference: Bright, History of England; "Epochs" Series; Green, Short History of the English People; Traill, Social England; Larned, History for Ready Reference; Porritt, The Englishman at Home; Adams and Stephens, Select Documents of English Constitutional History; Colby, Sources of English History; Kendall, Source Book of English History; Translations and Re-

prints; and Gardiner, *School Atlas of English History*. Desirable references are to be found in Andrews, Coman and Kendall, Larned, and Wrong; see, also, *Historical Sources in Schools*.
(1 credit)

16. American History

Text-books: McLaughlin, *History of the American Nation*; or Channing, *Students' History of the United States*; or Johnston, *History of the United States* (MacDonald's Revision); and Ashley, *American Government*; or Hinsdale, *American Government*; or Clark, *Outlines of Civics*, and Bryce, *American Commonwealth* (abridged edition); or equivalents.

For supplementary reading and reference: "Epochs of American History" Series; the "American History" Series; Hart, *American History Told by Contemporaries*; MacDonald, *Select Charters, Select Documents, and Select Statutes*; and McCoun, *Historical Geography of the United States*; see, also, *Historical Sources in Schools*.

(1 credit)

17. English Literature

A detailed list of the works read in preparation should be handed to the examiner when the candidate presents himself for examination. Blanks for this purpose may be obtained on application to the Registrar.

a. Elementary.—Candidates for admission who offer subject 17a will be examined in reading aloud. In connection with this examination they will be tested in their ability to follow the course of thought in ordinary prose and verse, and in their general knowledge of the books read in preparation.

The teacher may make out the course of reading from the following list of books, choosing two books from Group I, two from Group II, three from Group III, and four from Group IV. [The word *or* is to be understood as permitting only one of the books among which choice is to be made.]

Group I.—Shakspeare's *Merchant of Venice*, *Julius Cæsar*, *Macbeth*; the four Gospels (one book), or the equivalent of *Old Testament Stories* (Modern Readers' Bible Series).

Group II.—George Eliot's *Silas Marner* ($\frac{1}{2}$); Goldsmith's *The Vicar of Wakefield* ($\frac{1}{2}$); Thackeray's *The Newcomes*,

or Henry Esmond; Scott's *Ivanhoe*, or *Rob Roy*, or *Quentin Durward*; Cooper's *The Last of the Mohicans*; Hawthorne's *House of the Seven Gables*.

Group III.—The *Sir Roger de Coverley Papers*; Irving's *Alhambra*, or *Sketch Book*; Hawthorne's *Twice Told Tales*; Webster's *First Bunker Hill Oration*; De Quincey's *Flight of a Tartar Tribe*; Macaulay's *Essay on Clive*; on *Warren Hastings*; Carlyle's *Essay on Burns*.

Group IV.—Pope's *Rape of the Lock*; a translation of Homer's *Iliad*, I, VI, XXII, XXIV; Goldsmith's *Deserted Village* ($\frac{1}{2}$); Gray's *Elegy in a Country Churchyard* ($\frac{1}{2}$); Burns's *Tam o' Shanter* and *Cotter's Saturday Night* ($\frac{1}{2}$); Byron's *Prisoner of Chillon* ($\frac{1}{2}$); Keats's *Eve of St. Agnes* ($\frac{1}{2}$); Coleridge's *Ancient Mariner*; Scott's *Lay of the Last Minstrel*, or *Lady of the Lake*, or *Marmion*; Lowell's *Vision of Sir Launfal* ($\frac{1}{2}$); Tennyson's *Enid* and *Geraint*; Macaulay's *Horatius* ($\frac{1}{2}$).
(1 credit)

[Substantial equivalents for any books in the foregoing list will be accepted. The list of books prescribed for entrance subject 1 at the University of California is acceptable as a substitute, except that *Classic Myths* must be replaced by a book from Group II.]

b. Advanced.—The examination in subject 17*b* will presuppose a detailed study of the books presented, and a general knowledge of their place in the history of English literature. Great emphasis will be laid on the candidate's power of intelligent interpretation.

Teachers may make out a course from the following list, selecting one book from Group I, one from Group II, and taking up the whole of Group III, or two books from Group I and three from Group II. Repetition of books offered for subject 17*a* should be avoided.

Group I.—*Macbeth*; *Paradise Lost*, Books I and II; portions of the Bible; Spenser's *Faëry Queene*, Book I, Cantos I, II, and III; Chaucer's *Prologue to the Canterbury Tales*.

Group II.—Macaulay's *Essay on Clive*, or on *Warren Hastings*, or on *Milton* ($\frac{1}{2}$), or on *Addison* ($\frac{1}{2}$), or *Life of Johnson* ($\frac{1}{2}$); De Quincey's *Flight of a Tartar Tribe*; Burke's *Speech on Conciliation*.

Group III.—Hales's Longer English Poems, omitting Spenser's Prothalamion and Shelley's Adonais, and employing only such annotations as are of value in giving a full understanding of the text; or Syle's From Milton to Tennyson, omitting Lycidas, Shelley's Euganean Hills, the selections from Pope, Thomson, Johnson, Clough, and Browning, and poems reckoned in 17*a*, IV. For other omissions, equivalents must be offered. (*1 credit*)

[Fair equivalents for 17*b*, such, for example, as the books prescribed for entrance subject 14 (*a* and *b*) at the University of California, will be accepted.]

[Concerning time of examination, see p. 54; substitutes for examinations, p. 57, B, II, 4*d*; exemption from examination, p. 55, B, I, 1, 3.]

18-19. Spanish and French

The requirements in Spanish and French are the equivalent of those recommended by the Committee on College Entrance Requirements of the National Educational Association.

The Elementary study of the languages, covering two years of daily recitations, should lay stress on the following points: 1. An accurate knowledge of the forms of the languages, including the inflections, conjugations, and principal parts of verbs. Particular attention should be devoted to this part of the subject; constant drill in the verbal inflections, both written and oral, and dictation exercises of various kinds, are recommended. 2. The elements of syntax, such as the uses of the article, the personal pronouns, the subjunctive, the partitive constructions, and the agreement of the participles. 3. The ability to turn easy English prose into French or Spanish. 4. The ability to translate ordinary French or Spanish into idiomatic English. 5. The ability to pronounce French and Spanish correctly. It is believed that a fairly good pronunciation can be obtained in the fitting schools, if the necessary time is devoted to the subject. Pronunciation should be studied both theoretically and practically, and the characteristics of vowel qualities, of stress, pitch, and intonation should be pointed out.

The Intermediate requirements are intended to represent a third year of daily recitations. The specific demands are:

1. A thorough knowledge of modern French and Spanish syntax. 2. The ability to turn modern French and Spanish at sight into idiomatic English. 3. The ability to translate connected English prose into French or Spanish. 4. The ability to write French or Spanish from dictation.

For all grades the examination will include a test of pronunciation and the writing of French or Spanish from dictation.

The reading in the Elementary course should cover from four hundred to six hundred duodecimo pages; in the Intermediate requirement a similar amount should be read of prose and verse, a portion to be in the dramatic form. No definite text-books are prescribed, but the books named below will be found adequate for the mastery of these requirements.

18. Spanish

a. Elementary.—Garner, *A Spanish Grammar* (American Book Co.), Ramsey, *An Elementary Spanish Reader* (Holt & Co.), Matzke, *First Spanish Readings* (Heath & Co.), Tamayo y Baus, *Un Drama Nuevo* (Jenkins, New York), Valdés, José (Heath & Co.), Alarcón, *El Capitán Veneno* (Heath & Co.). (2 credits)

b. Intermediate.—Ramsey, *An Elementary Spanish Text-book* (Holt & Co.), Ramos y Vital, *Zaragueta* (Silver, Burdett & Co.), Caballero, *La Familia de Alvareda* (Holt & Co.), Alarcón, *El Niño de la Bola* (American Book Co.), Moratín, *El Si de las Niñas* (Ginn & Co.), Echegaray, *El Gran Galeoto* (Koehler, Boston). (1 credit)

19. French

a. Elementary.—Fraser and Squair's *French Grammar and Reader, Part I* (Heath & Co.), or Whitney's *Practical French Grammar, Part I* (Holt & Co.), or Grandgent's *Essentials of French Grammar* (Heath & Co.), or Chardenal's *Complete French Course* (Allyn & Bacon), or François' *Beginner's French* (American Book Co.); Super's *French Reader* (Heath & Co.), or Aldrich and Foster's *French Reader* (Ginn & Co.), or François and Giroud's *Simple French* (Holt & Co.); Dumas, *La Tulipe Noire*; Halévy, *L'Abbé Constantin*; Labiche, *Le Voyage de Monsieur Perrichon*; Mérimée, *Colom-*

ba. For the study of Pronunciation Matzke's Primer of French Pronunciation (Holt & Co.) is recommended.

(2 credits)

b. *Intermediate*.—Fraser and Squair's French Grammar and Reader, Part II (Heath & Co.), or Whitney's Practical French Grammar, Part II (Holt & Co.), or Edgren's Compendious French Grammar (Heath & Co.); George Sand, La Petite Fadette; Balzac, Eugénie Grandet; Victor Hugo, Hernani (Heath & Co.); Fontaines, Historiettes Modernes (Heath & Co.).

(1 credit)

20. German

The requirements in Elementary and Intermediate German are essentially those recommended by the Committee on College Entrance Requirements of the National Educational Association.

a. *Elementary*.—A satisfactory preparation will require: The ability to translate easy German prose and verse at sight; an accurate knowledge of the principles of grammar, embracing especially inflections, word-order, syntax, the composition of words, the force of prefixes and suffixes, and the relation of the English and German consonantal changes; the ability to translate easy prose from English into German; also the ability to pronounce German and to recognize German words and simple sentences when spoken. Careful attention should be given to the rules for pronunciation, length of vowels, and accentuation, to insure the fluent and intelligent reading of the German texts used in the class-room. This preparation would be represented, approximately, in reading, by Brandt's, Whitney's, Hewett's, or Thomas and Hervey's Reader, and the careful study of one or more modern dramas (about two hundred duodecimo pages of easy German); in grammar, by Whitney's, Brandt's, Joynes-Meissner's, or Thomas's Grammar; and in German prose, by the first twenty-six exercises in Harris's German Prose Composition, or the Themes in Thomas and Hervey's German Reader. The work in German prose should be preserved in note-books used exclusively for that purpose, written in ink, and consisting of the original work done by the student, followed by the corrected work approved by the teacher.

All candidates should present a statement from their former teacher of the amount of German read and the textbooks used. (2 credits)

b. Intermediate.—A satisfactory preparation will require, in addition to the requirements for Elementary German: The ability to translate ordinary German prose and verse at sight; a thorough knowledge of word-formation, derivatives, and cognates; advanced German syntax, with especial reference to the uses of the tenses, the modal auxiliaries, and the subjunctive and infinitive moods; the ability to translate into German easy connected English prose.

It is believed that this preparation can be acquired by the careful reading of five hundred duodecimo pages of classical and contemporary prose and verse, in addition to the reading required for Elementary German. It is recommended that at least one-half of this reading be selected from the following works: Lessing's *Minna von Barnhelm*, Goethe's *Egmont*, or *Götz von Berlichingen*, Schiller's *Wilhelm Tell*, or *Maria Stuart*, Heine's *Harzreise*, Freytag's *Bilder aus der deutschen Vergangenheit*. For the preparation in translation from English into German the first fifty pages of von Jagemann's, or Poll's *German Prose Composition*, or its equivalent, is recommended. The work in German prose should be preserved in the manner suggested under Elementary German. It is desirable that candidates should acquire the ability to follow a recitation conducted in German, and to answer in simple German sentences.

All candidates should present a statement from their former teacher of the amount of German read and textbooks used. (1 credit)

c. Advanced.—A fourth credit in German may be given to candidates who fulfill, in addition to the preparation required in Elementary and Intermediate German, the following requirements: Advanced German grammar and syntax; elements of the comparative grammar of English and German; study of Goethe's *Hermann und Dorothea*, or *Iphigenia*, Lessing's *Nathan der Weise*, and Schiller's *Wallenstein*, and the reading of advanced literary and scientific German prose; advanced German prose composition, and the ability to follow lectures given in German.

Candidates should present statements from their former teachers of the work done. (1 credit)

21. Latin

a. Elementary.—The requirements for Elementary Latin are as follows: 1. An accurate knowledge of the ordinary forms of the language. 2. The ability to pronounce Latin so as to observe the proper quantity of vowels. 3. A familiarity with the ordinary rules of syntax. Particular attention should be devoted to these three points. 4. The ability to translate easy Latin prose into English. 5. The ability to turn simple English into Latin.

For 1904-05 the examinations in translation and composition will be based on the first four books of Cæsar's Gallic War, but approved schools may use an equivalent Latin text, and are recommended to increase the amount of reading indicated. Some attention should also be paid to translation at sight from easy prose.

All candidates should present a statement from their former teacher of the amount of Latin read and the text-books used. (See also p. 57, *e.*) (2 credits)

b. Advanced.—The requirements for Advanced Latin include those for Elementary Latin together with the following: 1. Continued training in Latin forms and syntax. 2. Knowledge of the rules of prosody, and ability to scan Vergil's hexameters. 3. The ability to translate from Cicero's Orations. 4. Careful preparation of the first six books of Vergil's *Æneid*. 5. The ability to turn into Latin connected English based on Cicero.

For 1904-05 the examinations in translation will be based on the Vergil assigned and on Cicero's Orations against Catiline, for Archias, and for the Manilian Law, but approved schools may use any equivalent Latin prose text, and are recommended to add Sallust's Catiline and other speeches of Cicero to the minimum given above. All schools should pay some attention to translation of prose at sight, and the examination will include a passage from Cicero to test the ability of candidates in this respect. One credit may be given in advanced Latin to those who are deficient in the composi-

tion or in the Vergil, or who have completed either the Cicero or the Vergil with half of the required training in prose composition.

All candidates should present a statement from their former teacher of the amount of Latin read and the text-books used. (See p. 57, *e.*) (2 credits)

22. Greek

a. Elementary.—Grammar, the inflections, the formation of words, and the essential points of syntax; Xenophon's *Anabasis*, Books I-IV, or an equivalent; prose composition (Collar and Daniell's text-book is recommended); translation at sight of easy prose. It is expected of every student that he be able to read Greek aloud without stumbling.

(2 credits)

b. Advanced.—Homer, *Iliad*, Books I-III, or an equivalent; advanced prose composition. The candidate must show a thorough acquaintance with the forms and syntax of Homer, and must be able to scan any given passage exactly and to read it rhythmically. In the writing of Greek the candidate should have a year's training beyond that required in Elementary Greek.

(1 credit)

23. Biology

A course of study and laboratory work extending through one school year, the time divided equally between Botany and Zoology. The character of the work is indicated under the respective statements of Botany and Zoology (subjects 10 and 11).

(1 credit)

24. Physiography

The equivalent of Davis's *Physical Geography*, with an approved laboratory and field course of at least forty exercises actually performed by the candidate. The original note-book, certified by the instructor, and recording, with dates, the steps and results of the observations made by the candidate, must be submitted as evidence of the nature of the work. Special stress will be placed upon the candidate's ability to interpret physiography.

(1 credit)

25. Mechanical Drawing

The candidate is expected to have acquired neatness and accuracy in the use of drawing instruments. His course should have included practice in line work, lettering, machine or architectural working drawings, and tracing. He should present for inspection as much of his work as possible, duly certified by his teachers. As an examination the candidate may be called upon to make a simple working drawing of some specified object.

Equivalent to about two hundred and fifty hours of work under instruction. *(1 credit)*

26-29. Shopwork

Two things will be expected of candidates for entrance credit in these subjects: first, manual dexterity, as evidenced by the neatness, accuracy, and dispatch in the execution of a given piece of work; second, a knowledge of the materials and tools used, and a thorough understanding of the principles involved in the operations.

Candidates who have been trained in manual training schools or in commercial shops should present letters from their teachers or employers stating clearly and in some detail the time they have been employed, the kind of work they have done, and its quality. Every candidate, no matter what his credentials are, will be required to undergo an examination. This may be oral, written, the actual execution of a set piece of work, or all combined. In each subject the ability to read and follow a working drawing is expected.

Below are given the more specific requirements for the particular subjects, with the understanding that the foregoing general requirements apply to them all.

26. Woodworking

The ability to recognize the common varieties of wood and some knowledge of their physical properties, such as ease of working strength, toughness, hardness, etc., is expected. Candidates must be familiar with the uses of the principal hand tools of carpentry and with their care. They should be able to make the ordinary kinds of joints and splices.

They should be familiar with the operation of the lathe; the jig, band, and circular saws; and planing machines.

Equivalent to about two hundred hours of work under instruction in a manual training school, or a year in a commercial shop. ($\frac{1}{2}$ credit)

27. Forge Work

This demands an elementary knowledge of the properties of wrought iron and steel, and of the proper heats at which to work them. The management of forge and fire and the nature and uses of all the ordinary blacksmithing tools should be known. The candidate must be able to execute all of the common forging processes, including the various forms of welds in iron and steel; he is also expected to understand hardening, tempering, and annealing.

Equivalent to about two hundred hours of work under instruction in a manual training school, or a year in a commercial shop. ($\frac{1}{2}$ credit)

28. Foundry Work

The candidate should have a knowledge of the tools and processes used in the ordinary forms of green sand moulding and core work. He should be familiar with the cupola and know how to charge and operate it. He must have a knowledge of the properties of cast iron, and should have had experience in pouring cast iron as well as in moulding.

Equivalent to about two hundred hours under instruction in a manual training school, or a year in a commercial foundry. ($\frac{1}{2}$ credit)

29. Machine Shop

A knowledge of the tools and processes used in the working of iron, steel, and brass is demanded of the candidate. He should be able to execute all forms of vise-work, such as chipping, filing, scraping, fitting, and finishing. He must be familiar, through experience, with the simpler forms of machine tools, such as the lathe, drilling machine, planer, shaper, and milling machine.

Equivalent to about four hundred hours under instruction in a manual training school, or two years in a commercial shop. (1 credit)

A. ENTRANCE CREDITS ON EXAMINATION

Examinations in all entrance subjects are held at the University in January and in August. Entrance examinations are also held in May in English Composition and English Literature. Special examinations outside of the regular examination days, may be arranged at the discretion of the Committee on Admission; but in such cases a special fee of two dollars will be charged the candidate for each subject in which an examination is held.

[Candidates desiring examinations in other subjects at the close of the school year are advised to take the June examinations of the College Entrance Examination Board. (For particulars and other information address Secretary, College Entrance Examination Board, Sub-Station 84, New York City.)]

Specimen examination questions may be obtained on application to the Registrar.

Entrance examinations are held in the following order (for dates, see p. 5):

First Day—Elementary Algebra, 8:15; Advanced Algebra, American History, 10:15; Plane Geometry, Botany, 1:30; Solid Geometry, Mediæval and Modern History, 3:30; Trigonometry, 4:45.

Second Day—Physiology, Elementary French, 8:15; English Composition, 10:15; Chemistry, Intermediate French, 1:30; English History, 3:30.

Third Day—Physics, Elementary Spanish, 8:15; Intermediate Spanish, Elementary German, Physiography, 10:15; Zoology, Intermediate German, 1:30; Advanced German, Elementary Latin, 3:30.

Fourth Day—Biology, Mechanical Drawing, Advanced Latin, 8:15; Woodworking, Forge Work, Elementary Greek, 10:15; Freehand Drawing, Foundry Work, Advanced Greek, 1:30; Ancient History, Machine Shop Work, 3:30.

The examinations in English Literature are oral, and continue throughout the entire four days; but appointments must be made during the forenoon of the first examination day, unless arranged in advance by letter or otherwise.

Candidates for admission may, if they prefer, take a part of their examinations a semester or a year before they propose to enter; but (unless the candidate is a graduate of an approved school) account will not be taken of an examination passed more than sixteen months before the proposed time of entering.

B. ENTRANCE CREDITS WITHOUT EXAMINATION

I. On Fulfilling Particular Requirements

1. A candidate fulfilling all the requirements for admission in full standing at Bryn Mawr, California (Groups I, II), Chicago, Columbia, Cornell (A. B. course), Harvard, Johns Hopkins, Michigan (15 unit plan), Princeton (A. B. course), Smith, Vassar, Wellesley, Wisconsin (14 unit plan), or Yale (A. B. course), will be admitted to full undergraduate standing without further tests.

2. A candidate fulfilling all the requirements for admission in full standing to the State Universities of California (Groups III, IV), Illinois, Indiana, Iowa, Kansas, Minnesota, Missouri, or Nebraska may be assured of admission to the University; but entrance credits in particular subjects will be given only when all the specific requirements of this University, including supplementary tests, have been met, and all deficiencies must be made up in the usual way. (On account of the limitation upon the number of women students, this provision does not apply to women.)

In order to take advantage of the provisions under (1) and (2) above (except in case of the University of California) graduates of accredited schools should first present their credentials to the University by which the school is accredited. The statement of standing issued by the accrediting University may then be presented for admission to this University.

3. Preliminary credits secured by passing the regular entrance examinations of any of the institutions named above, or of the College Entrance Examination Board, will be accepted in subjects corresponding to those outlined in the entrance list, provided such supplementary tests as are required of recommended students (see below) are satisfactorily fulfilled.

4. Diplomas and sixty count academic certificates (and subsequent pass cards) issued by the Regents of the University of the State of New York will be credited on the same basis as recommendations from approved schools (see below).

5. Recommended graduates of the California State Normal Schools, and graduates of other Normal Schools approved by the California State Board of Education as of equal rank with the State Normal Schools of California, who are holders of the highest grade diploma issued by these Normal Schools, may be admitted, without examination, except in English Composition, to provisional undergraduate standing, such standing subject to revision after one year's attendance.

6. Undergraduate standing, without examination, will be granted to candidates from Japan, as follows: (1) to matriculates of the Imperial Universities of Tokyo and Kyoto; (2) to graduates of the Sapporo Agricultural College, the Higher Commercial School, Doshisha College, and Keiogijiku College; (3) to graduates of the eight Higher Schools (Kotogakko), the two Higher Normal Schools, the Girls' College, and the Girls' Higher Normal School. But before admission to the University such candidates must pass an examination showing ability to use and to understand readily both written and spoken English.

II. On Recommendation from Approved Schools

Entrance credits may be granted on the recommendation of the principal of any approved preparatory school, subject to the following conditions:

1. The candidate must have completed a full course in the school and have been duly graduated after at least one year's attendance.

2. The candidate must be specifically recommended by the principal in the subjects in which exemption is sought.

3. The University reserves the right to reject recommendations in particular subjects, if for any reason the work done is deemed insufficient or unsatisfactory.

4. In general, except as specified below, supplementary tests will be required in various subjects, as follows:

a. In English Composition, (1) an acceptable exercise in writing English at the University (see p. 36), or (2) an acceptable exercise-book presented under the following condi-

tions: The book must contain at least six compositions of about 250 words each, written in class and not corrected by the teacher, not more than two of them to be on subjects drawn from the pupil's reading. These compositions must be written without any aids whatever, and upon topics assigned by the teacher; they must remain in the custody of the teacher until submitted to the University, and must be submitted exactly as written. Blanks to be filled out by the teacher and sent in with the exercise-books, may be obtained on application to the Registrar. To be acted on in August, the books must be in the hands of the Registrar by August 10th; to be acted on in January, by December 15th.

b. In Physics, Physiology, Botany, Zoology, Drawing, and Biology, acceptable drawings and laboratory note-books. These note-books should contain the actual notes taken in the laboratory, not copies; and drawings and notes must be certified by the teacher.

c. In all History subjects, acceptable note-books, duly certified by the teacher. A detailed statement by the teacher as to the character, amount, and quality of the work may be submitted in place of the note-book itself.

d. In English Literature, an acceptable oral examination, at the University. Candidates who have had four years of High School English, and who are acceptably recommended in both *17a* and *17b*, may receive one credit without fulfilling the supplementary oral test; but the oral examination for the remaining credit will cover the requirements of both *17a* and *17b*.

e. In Spanish, French, German, Latin, and Advanced Greek, acceptable exercise-books in Prose Composition, duly certified by the teacher, or an examination at the University in Prose Composition.

f. In Physiography and Shopwork, duly certified note-books and drawings, and an examination at the University.

Except in English and History, candidates who have passed corresponding examinations of the College Entrance Examination Board, or of any of the institutions named under B, I, 1 and 2 above, or who are acceptably recommended from schools accredited by any of these universities on the basis of visitation and inspection of schools, or by the New Eng-

land College Entrance Certificate Board, may be excused from the supplementary tests noted above. The corresponding entrance examinations of the College Entrance Examination Board and of the institutions named under B, I, 1, above, will also satisfy the requirements in English. In History the presentation of note-book or special statement will be waived for California schools duly accredited in this subject by the University of California.

A candidate presenting acceptable recommendations in subjects aggregating *fifteen* credits may be assured of admission to the University, notwithstanding various supplementary tests which must be met. But final entrance credit in any particular subject will not be given until all required tests have been satisfactorily met, and such supplementary tests must be fulfilled within one year after matriculation. (Not applicable to women.)

Recommendations will be considered at any time of the year, but since, in general, candidates cannot be assured of admission to the University without examination in one or more subjects, it is important that recommendations be forwarded as early as possible.

Blanks for admission on recommendation may be obtained from the Registrar.

II. AS SPECIAL STUDENTS

Persons under twenty-one years of age will not be received as special students.

The privileges extended to special students are not intended for those who come directly from the schools, with insufficient preparation for regular standing, but for those who are qualified by age, character, practical experience, and habits of study to profit by university courses. Such properly qualified persons may be admitted as special students, without fulfilling the regular entrance requirements, upon presenting satisfactory credentials and testimonials; except that on account of the limitation upon the number of women students, women will not be admitted as special students. This latter provision will not affect those who have already matriculated in the University.

Special students are subject to the same University regula-

tions as regular undergraduates, and they may become candidates for graduation upon fulfilling all University requirements, including those for entrance (see, also, p. 64).

A failure on the part of any special student to maintain a good standing in the studies to which he is admitted will at once sever his connection with the University; and a special student suspended for failure in University work may be readmitted only upon attaining regular undergraduate standing.

Blank applications for admission as special students may be obtained from the Registrar.

III. TO ADVANCED STANDING

Students from other institutions of recognized collegiate rank, who present letters of honorable dismissal may be admitted to such standing and upon such terms as the Faculty may deem equitable. Students from institutions of equivalent rank, who maintain a satisfactory record after admission, may expect to receive the same standing as at the former institution, except that no such student can be given more than three years' advanced credit (ninety hours toward graduation), and that differences in standard of entrance preparation will be taken account of. Every candidate is required to present, along with a catalogue of the institution in which he has studied, a full statement, duly certified, of the studies he has completed, including studies passed or credited at entrance.

Recommended graduates of approved State Normal Schools where the normal training has been preceded by a full four years' high school course, may be granted an advanced credit of not more than thirty hours.

Blank applications for admission to advanced standing may be obtained from the Registrar.

All applications for advanced standing on the basis of work done before entering the University must be filed within two years after matriculation; and such applications will not be received at a later date.

IV. TO GRADUATE STANDING

Graduates of this University, and of other institutions of recognized collegiate rank, may be admitted to graduate

standing in the University upon presentation of diplomas or equivalent credentials. Admission to technical graduate standing does not imply admission to candidacy for an advanced degree (for the conditions of such candidacy, see p. 72). If graduates of other universities desire to become candidates for the baccalaureate degree, the question of hours required for graduation may be waived and the degree conferred on the satisfactory completion of not less than thirty hours of University work and the fulfillment of all major and minor requirements. Graduate students not candidates for any degree, may be admitted, upon the approval of the major professor, to such work as their previous training seems to warrant.

UNIVERSITY RESIDENCE

Registration

On the appointed Registration Days, in August and January, each student must obtain a certificate of registration *in person*, at the Registrar's office.

Matriculated students may register after the appointed Registration Days and during registration week, upon payment of a special fee of two dollars; during the week following the fee for late registration will be four dollars; after that the fee will be increased one dollar for each week's delay. Registration of undergraduates and specials will not be permitted later than one month after the beginning of instruction.

Study Card

At the Registrar's office the student receives a card for selection of studies for the semester. This card, properly filled out, and approved by the major professor, must be filed with the Registrar not later than the Friday following Registration Day; but late study cards will be accepted upon payment of a special fee of two dollars. Students registering after the Friday of registration week, must have their study cards indorsed by all the instructors under whom work is taken.

Enrollment in Classes

A student desiring to enter any class must present his certificate of registration to the instructor for enrollment at the beginning of each semester. Whether the student is qualified for enrollment in any particular class is a question to be decided by the instructor in charge. In general, the prerequisites for taking any given course are noted under "Courses of Instruction."

Change of Studies

A student desiring to drop a subject once taken up, or to take up a new subject after the study card has been filed, must

present to the Committee of Registration a petition for such change, approved by the major professor and by the instructors whose subjects are to be taken or dropped. In general, petitions so approved, if they do not give the student too many hours or too few hours, and if presented within one month after the beginning of the semester, are granted without question. If presented at a later time in the semester they will be granted only for extraordinary reasons, and, where the taking up of new subjects is involved, only on payment of a special fee of two dollars; if otherwise acceptable but presented after the close of the semester, they will be granted only on payment of a special fee of four dollars for each course. Petitions to drop subjects will not be considered during the last six weeks of the semester.

Change of Major Subject

Petitions to change the major subject will be granted when approved by the professors in charge of both the old and the new subjects, the student being held to all the requirements of the new major subject. In general, the major subject may be changed at the end of the first year, and in some cases later, without appreciable loss of time to the student.

Amount of Work

Fifteen hours per week of recitations or lectures, or their equivalent in laboratory work, constitute an average semester's work. In general, students may register for as few as *thirteen* or as many as *eighteen* hours, except that where conditions or failures have been incurred in the preceding semester not more than *fifteen* hours may be registered unless by special permission of the Committee on Registration. But in the case of students doing outside work for self-support or otherwise, and where considerations of health are involved, special restrictions will be made upon recommendation of the professor of hygiene. Permission to register for less than *thirteen* hours may also be granted for special reasons; but registration for less than nine hours will not be accepted. Graduate students are not held to any special number of hours, but registration will not ordinarily be permitted unless such students are prepared to devote at least half of their working time to University study. Petitions for irregu-

lar hours should be presented at the beginning of the semester.

Every hour for which credit is given is understood to represent approximately, for the average student, three hours of actual work per week, through one semester. Thus, in lecture or recitation work, one hour is allotted to the lecture or recitation and two hours for preparation or subsequent reading and study on the part of the student. Where the time is wholly occupied with drawing, field, or laboratory work, three full hours per week through one semester are expected of the student for each hour that counts toward graduation. Where the drawing, field, or laboratory work is supplemented by systematic outside reading or experiment under the direction of the instructor, such a reduction may be made in actual drawing, field, or laboratory time as seems just to the department concerned.

Conditions and Failures

A student conditioned in any subject may arrange with the instructor concerned for such supplementary examinations or study as will make good the deficiency; but such deficiency must be removed within one year after the condition is incurred, otherwise the condition will be considered a failure. Work reported as incomplete must be made up within one semester. A student failing in any subject cannot receive credit for the portion in which the failure is incurred until the subject has been re-registered and taken over again in class. A condition or failure or withdrawal from class without permission of the Committee on Registration, limits the student to *fifteen* hours the semester following.

Entrance Conditions

Students admitted to partial undergraduate standing may make up entrance deficiencies (1) by completing before graduation, in addition to the one hundred and twenty hours required for graduation, five hours of university work for each entrance credit lacking (except in the case of English Composition, which must be passed on examination); or (2) by passing entrance examinations in the additional subjects necessary, provided such examinations are passed within one year after admission to the University. All supplementary

tests necessary to give final entrance credit in any recommended subjects must be fulfilled within one year after matriculation.

From Special to Regular Standing

Special students may be entered in regular standing and become candidates for graduation, on passing examinations in the required number of entrance subjects. In place of entrance examinations, university work to the amount of five hours for each entrance credit may be offered in university subjects which are also included in the entrance group.

A special student who has completed one hundred and fifty hours of university work, including all major requirements, and whose general university record is deemed proof of superior scholarship, may be relieved of some or all of his entrance deficiencies at the discretion of the Committee on Admission and Advanced Standing. Petitions to this end will not be considered by the Committee until after the student has completed one hundred and twenty hours of university work.

University Credit for Extra Entrance Subjects

Credit toward graduation may be given for entrance subjects in excess of the number required for admission, provided such extra entrance subjects are also university subjects, and are successfully continued in the University within two years after matriculation, and provided the student's general University record is deemed proof of superior scholarship. Applications for such university credit must be made within two years after matriculation. After matriculation additional entrance credits may be offered only for the purpose of making up entrance deficiencies, except that recommended subjects requiring supplementary tests for final credit may be counted as extra entrance subjects, if such supplementary tests are fulfilled within one year.

University Credit for Special Courses

University credit is given only for work done in residence at the University. Work prescribed by any professor of such a nature that it cannot be done at the University or can be more advantageously done elsewhere may be regarded as work done in residence. But such special work must be

duly registered in advance and must be included in the thirty-six hours permitted for any calendar year.

Matriculated students on leave of absence may take work in other universities, usually without any restrictions other than those imposed by the university in question. But work undertaken in any Summer Session may be subject to special regulations; and the last semester's work of every candidate for a degree must be taken in this University.

Advanced Standing

Advanced standing for work done before matriculation will generally be given only when certified as having been completed in some institution of recognized collegiate rank, except as provided above (p. 64) for extra entrance credits, or, in particular cases, to recommended graduates of approved State Normal Schools (see p. 59). But in special cases permission may be given by the Faculty to receive credit on examination for work equivalent to regular University courses. Application for such examinations, with satisfactory evidence of the work accomplished, must be presented to the Committee on Advanced Standing. Applications for advanced standing on the basis of work done before entering the University must be made within two years after matriculation.

Leave of Absence

A student desiring to leave the University for a brief time should apply to the Committee on Registration. If leave of absence is desired on account of sickness the petition must be indorsed by the professor of hygiene. A leave of absence is merely a justification of the absence and not a relief from the work that has been missed. A leave of absence is usually necessary only in case of interrupted work; a student in good standing absent one or more semesters may re-enter at the beginning of any semester without formal petition.

EXPENSES OF THE STUDENT

Fees

Graduate students in Law and Engineering, and all undergraduates, are charged a registration fee of *ten dollars* per semester; special students, *fifteen dollars* per semester. But these registration fees are waived in the case of *bona*

fide residents of California who have been resident in the State at least one year immediately preceding registration. Students in laboratory courses pay for the materials which they use, and in various courses syllabus fees are charged. Laboratory and syllabus fees are different for the different courses, ranging from *fifty cents* to *twenty-five dollars* per semester (see under "Courses of Instruction").

Cost of Living

The cost of living in Roble Hall, including board, room, light, heat, and attendance averages about twenty-five dollars per month. Students furnish their own linen, blankets, towels, and napkins. Rooms may be reserved in advance by making a deposit of two dollars. Women students may live outside the Hall only in places approved by the University.

Rooms in Encina Hall, furnished similarly to those in Roble Hall, but without board, cost from \$5.00 to \$5.50 per month, with two in a room. There are a few single rooms at \$7 per month. Students occupying a double room alone pay the full price of the room. Each double room is furnished with two single beds. Rooms may be reserved in advance by making a deposit of two dollars.

In Palo Alto and College Terrace, at an average distance of a mile and a quarter from the University, good rooms and board, in private houses, can be obtained, at from eighteen to twenty-five dollars per month. A considerable number of students live in co-operative clubs, in which board and rooms may be had for fifteen dollars per month; these rooms are lighted and heated, but usually unfurnished. Special commutation tickets are issued by the Southern Pacific Company, and students living in towns on the line of the railway, from San Francisco to San José, can easily go to and from the University daily. Carriages connect with all trains at Palo Alto. A careful list of available rooms and boarding-places outside the Halls is compiled a week or ten days before the opening of the University year in August, and is on file for easy reference at the Information Bureau of the Christian Associations, in the quadrangle. New students will find no difficulty in securing suitable accommodations upon their arrival.

The University Inn, located near the quadrangle, has dining

accommodations for about three hundred students. The cost of board during 1903-04 has been about \$20 per month.

Books and stationery will average from eighteen to twenty-five dollars per year.

The expenses of the student, exclusive of clothing and railway fares, need not exceed \$225 to \$300 per year.

MEMORIAL SCHOLARSHIP

The Leland Stanford Junior Scholarship, established by the surviving founder, in 1900, in memory of her son, pays the necessary expenses of its holder throughout the undergraduate course. The first holder is Mr. John Titus Cooper, of Los Angeles.

SELF-SUPPORT OF STUDENTS

A considerable number of students manage, in one way or another, to earn the whole or a part of their expenses while attending the University. Such opportunities occur in the line of office and laboratory assistance, personal services of numerous kinds, the management of various student enterprises, agencies for laundries, etc.

The Christian Associations, under the supervision of the Faculty Committee on Student Employment, register without charge all students who apply for employment, and supply employers with student labor as demanded. In general, the demand and supply are very nearly equal, but the Committee desire to call the attention of new students who intend to earn the whole or a part of their living, to the following results of their experience:

1. There is a constant *over-supply* of those wishing to do teaching and clerical labor. None but those having superior qualifications and experience are likely to secure employment the first semester.

2. There is constant demand for efficient stenographers; also for men and especially women students who can do domestic labor of any kind: many earn board and room rent by waiting on table, washing dishes, general housework, house cleaning, gardening, etc.

3. Students who can do any kind of domestic or manual labor *well*, and who have thoroughly good health, can earn their board by three hours' work per day, or board and room

by four hours' work per day. Those who are bookbinders, printers, mechanics, or carpenters, will have a decided advantage in obtaining employment. But the Committee strongly advise that no student should come to the University without resources sufficient for the expenses of one semester. There have been several instances of failure in studies and serious ill-health on the part of those who have come without resources.

4. The University curriculum is adapted to those who have control of their entire time for study. The student who must earn his living therefore, should expect to take less than the usual amount of University work.

5. No student should come expecting to earn money, who can do nothing well; skill is absolutely essential, as competition is quite as severe in the college community as elsewhere.

6. Opportunities for earning money during summer vacations can usually be counted on, the demand for canvassers being most constant.

Particular inquiries concerning opportunities for self-support should be addressed to the Secretaries of the Christian Associations.

UNIVERSITY HEALTH CONTROL

The University exercises an advisory control over student health affairs and athletics.

Every student upon entering the University is required to report to the University Health Officer for a brief medical examination of his eyesight and general health. Any condition which may place a limitation on the amount or kind of work planned by the student is discussed with him or made the subject of a report to his major professor or to the Committee on Registration.

Students intending to train for any of the athletic teams, or to register for gymnasium work, are required to pass a careful physical and medical examination at the beginning of each semester.

A careful inspection of all boarding and rooming houses in the community is carried out under the supervision of the Health Affairs Committee, and only those are permitted to register who arrange to live in houses which have been approved.

All students are entitled to medical consultation and to individual advice in other matters directly or indirectly relating to their health, at any time during the year; but no treatment is undertaken by the University.

Students' Guild

Provision for the care of cases of contagious disease or of other serious illness is made by the Guild, which is a student organization under the supervision of a Board of Directors composed of students and members of the faculty. Hospital service and nursing are provided by means of a central hospital and a number of portable hospital equipments. A uniform hospital rate of one dollar per day is charged members of the Guild. All students are required to become members by paying the Guild fee. The amount of this fee is subject to change from time to time as the organization may direct. During 1903-04 the fee was one dollar for the first semester, and two dollars for the second semester.

GRADUATION

Candidates may present themselves for graduation in January, May, and September.

No degree will be conferred upon any person who has not spent at least one year in resident study at the University. No honorary degrees are given.

Teachers' Certificates

County, or City and County Boards of Education are authorized to grant High School Certificates (as provided in Sections 1521, 1775, and 1792 of the Political Code of California, and in accordance with the regulations of the State Board of Education), to graduates of this University upon presentation of a recommendation from the Faculty; *provided*, that such recommendation shall show that the applicant has taken courses in the theory of education, or in the actual practice of teaching, under the supervision of the Department of Education, equivalent to twelve hours per week for one-half year; *provided*, that after July, 1906, at least one-third of the prescribed work in education shall consist of actual teaching in a well-equipped training school of secondary grade directed by the Department of Education.

Recommendation of Teachers

The Faculty Committee on Recommendation of Teachers undertakes (1) to keep a record of students and graduates who wish to teach, or to be transferred to other teaching positions, and (2), upon application of Boards of Education, School Trustees, or other officials to recommend for suitable vacancies such candidates as seem most likely to succeed.

The University does not solicit positions for its graduates, and the Committee reserves the right to refuse to recommend candidates enrolled. Information received from University instructors and others regarding the fitness of candidates is regarded as confidential, and general letters of

recommendation are not given. No charge is made for any service rendered.

Blanks for registration with the Committee may be obtained of the Secretary at the Registrar's office. They should be filled out each year, preferably during March or April.

BACHELOR OF ARTS

The degree of BACHELOR OF ARTS (A. B.) is conferred upon candidates who have satisfactorily completed a total of one hundred and twenty hours of University work and who have also satisfied the requirements in major and minor subjects.

Thirty hours constitute a normal year's work (see p. 62), but the ordinary class divisions (freshman, sophomore, junior, and senior) are not recognized by the University. The degree is conferred whenever the requirements are met, without regard to the time spent, except that at least thirty hours (including the last fifteen) must be completed in this University.

Each student selects as his major subject or specialty the work of some one department. This department has the authority to require the completion of this *major* subject, and also of such *minor* subjects in other departments as may be considered necessary or desirable collateral work. Such major and minor requirements taken together will not (except in the departments of applied science) exceed forty hours of University work, or one-third of the student's time during his undergraduate course.

With these exceptions, all the undergraduate work in all departments is elective. The student may freely choose for such elective work any subject taught in the University, which his previous studies have prepared him to undertake.

The professor in charge of the major subject of any student is expected to act as adviser to the student in educational matters, and the recommendation of such professor is necessary to graduation.

BACHELOR OF LAWS

The professional degree of BACHELOR OF LAWS (LL. B.) is conferred upon students who have previously received the academic degree of Bachelor of Arts, or its equivalent, and who have completed fifteen courses in Law, exclusive of Elementary Law and the Special Courses in Law. Students

over twenty-one years of age (including Special Students) who have completed fifteen courses in law including the first year courses, with distinguished excellence, in residence at this University, but have not received a collegiate degree, may also be given the degree of Bachelor of Laws.

Candidacy for Advanced Degrees

Every applicant for an advanced degree must file at the Registrar's office not later than the beginning of the semester preceding that in which the degree is sought, a formal application including a statement of the proposed course of study. This application must be approved by the major professor, and upon acceptance by the Faculty the applicant is admitted to candidacy for such advanced degree. It is advisable that such application be made as early as possible in the student's course. Where a thesis is required it shall be upon a subject approved by the major professor, and, if for the doctor's degree, shall be presented in its final form at least six weeks before the close of the semester in which the degree is sought. Accepted theses for the master's degree, shall be bound in a uniform style and deposited in the University Library. No advanced degree will be conferred except upon the recommendation of the appropriate Faculty committee.

MASTER OF ARTS

The degree of MASTER OF ARTS (A. M.) is conferred upon graduates of this University, and upon others who have had an equivalent training elsewhere, on the satisfactory completion, in residence, of one year of graduate work, beyond the baccalaureate requirements of the department in which the degree is sought, and on the presentation of an approved thesis, or the passing of a satisfactory examination, or both. At least two-thirds of the year's work required of the candidate is to be devoted to the major study. Work done in the University outside of the requirements for the degree must be registered, but will not be taken into account in connection with the degree.

Special regulations are as follows:

1. A report upon the character of the work done will be made by each instructor under whom a candidate is registered.

2. Some evidence of ability to do original work is required of every candidate. In addition, therefore, to examination, a thesis is expected, unless such evidence is furnished in other ways.

ENGINEER

In the departments of applied science the professional degree of ENGINEER is conferred upon graduates of this University, and upon others who have had an equivalent training elsewhere, on the satisfactory completion, in residence, of one year of professional study beyond the baccalaureate requirements of the department in which the degree is sought, and on the presentation of an approved thesis, showing ability to do independent work.

DOCTOR OF PHILOSOPHY

The degree of DOCTOR OF PHILOSOPHY (Ph. D.) is conferred upon graduates of this University, and upon others who have had an equivalent training elsewhere, on the satisfactory completion of at least three years of graduate work, beyond the baccalaureate requirements of the department in which the degree is sought, under the following conditions:

1. The degree is given only on the ground of advanced scholarship and the ability to do independent work in some special line, and not for merely faithful study for a prescribed time or course, nor for miscellaneous study. Three years represents the minimum time in which the degree can be obtained and often a longer period of study will be necessary.

2. Graduate work done elsewhere may be accepted in place of resident study in this University; but in no case will private study without sufficient guidance, or pursued at a distance from libraries or laboratories or other necessary facilities, be accepted as an equivalent; and no degree will be granted to any person who has not spent at least the last year of such study in residence at this University.

3. The course of study shall embrace one major subject and one or two minors in related departments. The minor subject or subjects shall represent approximately one-third of the course of study; except that such minor subjects may be waived, on the recommendation of the department in which the major subject is taken, and with the approval of the

Faculty, whenever the general preparation or special needs of the candidate make such a course seem desirable.

4. The candidate must present a thesis of such a character as shall display power of original and independent investigation and constitute an actual contribution to knowledge. He must guarantee the printing of the thesis, in a form approved by the Faculty, within one year after the degree is conferred, and must deposit one hundred copies in the University Library.

5. The candidate must sustain such final examinations in major and minor subjects as may be prescribed by the departments in which studies are taken, and also shall submit to such tests or examinations as may be required by the special Examining Committee of the Faculty. This special committee shall be responsible for the fitness of the candidate.

The special Examining Committee shall consist in each case of (1) the professor in charge of the major subject, (2) the one or more professors in charge of the minor subjects, (3) two members of the Committee on Graduate Study whose departments lie nearest to that of the major professor, and (4) the Chairman of the Committee on Graduate Study, acting as its secretary.

6. In addition to the foregoing conditions prescribed by the University, the Faculty will, in general, insist upon the following conditions: (1) that all candidates be required to show a reading knowledge of French and German; (2) that, whenever practicable, the departmental examinations, in both major and minor subjects, be written, the papers of candidates to be submitted to the special committee prior to the day fixed for the final test before that committee; (3) that examinations in minors be held not earlier than the second semester before the time named for conferring the degree.

COURSES OF INSTRUCTION

[*Courses for 1903-04, with Announcements for 1904-05.*]

GREEK

Professors AUGUSTUS TABER MURRAY, HENRY RUSHTON FAIRCLOUGH. Associate Professor HENRY WINCHESTER ROLFE. Assistant Professor JEFFERSON ELMORE. Instructors BENJAMIN OLIVER FOSTER, ERNEST WHITNEY MARTIN.

UNDERGRADUATE COURSES

Instruction in the lower classes is given chiefly by means of recitations, but as the student advances these are supplemented by lectures.

It will be seen that provision is made for those who have had no Greek before coming to the University.

1. Elementary.—Grammar; translation of easy prose; Greek composition. After the essential grammatical forms have been mastered, passages of continuous prose are taken up for translation, and, as soon as is practicable, the *Anabasis*. The student is made familiar with the ordinary forms of syntax, and exercises in writing Greek are regularly introduced. This course does not count as a part of the major work for students in Greek.

5 hrs., both semesters (MURRAY)

2. Plato and Lysias.—The *Apology* and *Crito*, and selections from Lysias. Course 2 is open to those who have offered subject 22 on entrance, or who have completed course 1 in the University. *3 hrs., 1st semester* (MARTIN)

3. Herodotus and Homer.—A continuation of course 2. Selections from Herodotus and the *Odyssey*.

3 hrs., 2d semester (MARTIN)

4. Prose Composition and Sight Translation.—Simple prose is taken up for sight reading, and the exercises are based

upon the text read. Course 4 is required of all students in courses 2 and 3 who are making Greek their major study.

2 hrs., both semesters (MARTIN)

5. Syntax.—Lectures and exercises on Greek syntax, treated from a practical rather than a theoretical standpoint.

1 hr., 1st semester (MURRAY)

6. Geography.—Lectures and exercises on the geography of the Greek world and the geographical ideas of the Greeks from the earliest times. *1 hr., 2d semester* (ROLFE)

7. Homer.—A critical study of the Iliad, with discussions and papers on Homeric topics. Open to those who have completed courses 2 and 3, or an equivalent.

3 hrs., 1st semester (FAIRCLOUGH)

8. Oratory.—Jebb's Selections from the Attic Orators, with lectures. A continuation of course 7.

3 hrs., 2d semester (FAIRCLOUGH)

9. Prose Composition and Sight Translation.—Selections for translation are made from the historical and philosophical writers. A variety of practical exercises in Greek composition are prepared, according to the needs of the class. Open only to those who have completed course 4, or an equivalent, but required of major students before graduation.

2 hrs., both semesters (ELMORE, FOSTER)

10. Homeric Antiquities and Mycenæan Art.—Lectures, illustrated by stereopticon. *2 hrs., 1st semester* (ROLFE)

11. Later Greek Art.—With especial reference to Sculpture and Vase Paintings. Lectures, illustrated by stereopticon. [Courses 10 and 11, alternating with courses 12 and 13, will not be given in 1904-05.] *2 hrs., 2d semester* (ROLFE)

12. Homeric Religion, Mythology, and Ritual.—Lectures, illustrated by stereopticon. *2 hrs., 1st semester* (ROLFE)

13. Religion and Mythology.—Religious, Ethical, and Political Ideas of the Greeks in the Fifth Century. Lectures, supplemented by use of the stereopticon.

2 hrs., 2d semester (ROLFE)

14. Greek Tragedy.—The Prometheus of Aeschylus, the Antigone and Electra of Sophocles, and the Hippolytus and Iphigenia Taurica of Euripides are read and interpreted. Other plays are assigned for private study, and lectures on

the drama are from time to time given. [Course 14, alternating with courses 15 and 16, will not be given in 1904-05.]

3 hrs., both semesters (MURRAY)

15. Plato and Demosthenes.—The *Phædo* and the *De Corona* are read and interpreted.

3 hrs., 1st semester (ROLFE)

16. Thucydides.—Books VI and VII, the Sicilian Expedition.

3 hrs., 2d semester (ROLFE)

17. Teachers' Course.—Lectures and practical exercises.

2 hrs., 1st semester (ROLFE)

18. Bucolic Poetry.—Selected idylls of Theocritus, Bion, and Moschus and the Eclogues of Vergil will be read and interpreted. [See Latin 20. Students completing this course will receive 1 hr. credit in each department.]

2 hrs., 2d semester (MURRAY)

19. Lyric Poetry.—Readings and Lectures. [Course 19 will not be given in 1904-05.] *2 hrs., 2d semester* (FAIRCLOUGH)

GRADUATE COURSES

The center of the Graduate work is the Greek Seminary—made up of the director and such students as satisfy him of their fitness for the work. The Seminary meets weekly for the critical interpretation of some Greek author, the different members, in turn, filling the post of interpreter. Topics for investigation are assigned, and papers prepared by the members are read and discussed.

Members of the Seminary are expected to supplement their critical work by wide reading, and lectures on the author or authors under discussion are given by the director. It is in the highest degree desirable that all members of the Seminary should be able to read both French and German.

20. The Greek Seminary.—In 1904-05 the Seminary will be occupied with the study of Aeschylus and will include a careful reading of all the extant tragedies and the interpretation of select passages of the *Agamemnon*. Lectures by the director on metrical and other topics will accompany the work of the Seminary. Students should provide themselves in advance with the critical edition of Aeschylus by Vitelli and Wecklein and with convenient texts of Sophocles

and Euripides (e. g. those in the Teubner series). Annotated editions of the separate plays will be found useful.

1 hr., both semesters (MURRAY)

21. Reading.—Graduate and advanced students will meet weekly for the careful reading of the extant plays of Aeschylus.

2 hrs., 1st semester (MURRAY)

22. Aeschylus.—Lectures interpretative of his dramatic art.

1 hr., 2d semester (MURRAY)

SPECIAL LECTURES

Throughout the year Professor Murray gives lectures, twice weekly, on Greek Epic and Dramatic Poetry. These lectures are intended for general literary students, and do not presuppose a knowledge of Greek; they will not count as a part of the major work for students in Greek.

23. The Greek Epic. *2 hrs., 1st semester* (MURRAY)

24. Greek Tragedy. *2 hrs., 2d semester* (MURRAY)

LATIN

Professors HENRY RUSHTON FAIRCLOUGH, AUGUSTUS TABER MURRAY. Associate Professor HENRY WINCHESTER ROLFE. Assistant Professor JEFFERSON ELMORE. Instructors BENJAMIN OLIVER FOSTER, ERNEST WHITNEY MARTIN.

UNDERGRADUATE COURSES

The aim of the undergraduate courses in Latin is to give the student a somewhat systematic knowledge of the language and its development, an acquaintance with the representative authors of Latin literature, and some insight into the life, culture, and civilization of ancient Rome.

1. Elementary.—Grammar; translation of easy prose; Latin composition. This elementary course is intended only for mature and earnest students who have had no school training in Latin. Those who have had some slight previous training may be admitted the second semester.

5 hrs., both semesters (MARTIN)

2. Vergil and Cicero.—Vergil, six books of the *Æneid*; Cicero, selected orations; exercises in Latin composition. This course is planned for those who have passed in entrance

subject 21a. Courses 1 and 2 do not count as major work for students in Latin. *3 hrs., both semesters* (FOSTER)

3. Terence, Cicero, and Horace.—Terence, *Andria*; Cicero, *De Senectute* and *De Amicitia*; Horace, *Odes* and *Epodes*.

Open to students who have completed course 2, or who have offered subject 21b on entrance. Two sections.

3 hrs., both semesters (ELMORE, ROLFE)

4. Terence, and Selections, illustrative of Roman life.—A reading course, intended mainly for students who have not taken course 3 in the first semester.

3 hrs., 2d semester (MARTIN)

5. Prose Composition I.—Open to those taking course 2, and required of all major students in Latin. The work in composition is accompanied by a study of Cicero, *Tusculan Disputations*, Book I, and Scipio's Dream.

2 hrs., both semesters (FOSTER)

6. Horace.—*Satires* and *Epistles*. Open to those who have completed course 3 or course 4. Attention will be directed especially to the style and subject matter, to Horace's influence upon later literature, and to the salient features of the Augustan age.

3 hrs., 1st semester (FAIRCLOUGH)

7. Livy and Tacitus.—Selections from Livy's *History* and the *Annals* of Tacitus. This course, complementary to course 6, will involve a survey of Roman history and the literature of the early empire.

3 hrs., 2d semester (ELMORE)

8. Prose Composition II.—Open to students who have taken course 5. In addition to the work in composition, the class will read the *Jugurtha* and *Catiline* of Sallust and the *Agricola* of Tacitus. Exercises for translation into Latin will be prepared to suit the needs of the class.

2 hrs., both semesters (ELMORE)

9. Plautus.—In this course the *Trinummus* of Plautus will be studied with particular reference to the early forms, constructions, and meters; and that followed by the more rapid reading of the *Captivi* and *Rudens*. Considerable attention will be paid to a comparison between ancient and modern comedy, the development of Latin comedy, the early theatre, and the method of presenting a play.

2 hrs., 1st semester (ELMORE)

10. The Letters of Cicero.—The aim will be to get a view of Cicero and his times from the original sources, to ascertain the causes for the breaking down of the Republic, and to become familiar with official procedure in the judicial and legislative bodies. Special attention will be paid to the style of the letters. *2 hrs., 2d semester* (FOSTER)

11. Suetonius and Pliny.—Selections from the Biographies of Suetonius and the Letters of Pliny. *2 hrs., 1st semester* (FOSTER)

12. Catullus, Tibullus, and Propertius.—Selections from these authors will be studied, largely with reference to the thought and artistic form, and compared with similar poems of other writers. *2 hrs., 2d semester* (FAIRCLOUGH)

13. Lucretius.—Selections from the *De Rerum Natura* will be read with particular attention to the philosophic thought and its poetic treatment. [Course 13, alternating with course 12, will not be given in 1904-05.] *2 hrs., 2d semester* (FOSTER)

14. Prose Composition III.—A course for third-year students. *1 hr., both semesters* (FAIRCLOUGH)

15. Juvenal and Martial.—Selections from the Satires of Juvenal and the Epigrams of Martial with supplementary reading in other writers of the first century. *2 hrs., 1st semester* (ELMORE)

16. Quintilian and Cicero.—Book X, with selections from Cicero, *De Oratore*. Rhetoric and literary criticism among the Romans. *2 hrs., 2d semester* (FOSTER)

17. Prose Composition IV.—Translations from English authors. For advanced students. *1 hr., both semesters* (FAIRCLOUGH)

18. Teachers' Course.—Lectures on methods of teaching Latin, with practical exercises. Open only to advanced students. *2 hrs., 2d semester* (ELMORE)

19. Roman Law.—In this course, based upon the Commentaries of Gaius and the Institutes of Justinian, lectures will be given upon the leading principles and history of

Roman Law. Open to all who have some knowledge of Latin, and intended especially for students in Law.

2 hrs., 2d semester (FAIRCLOUGH)

20. Bucolic Poetry.—[See Greek 18.] (MURRAY)

21. History of Roman Literature.—A survey of the subject with assigned readings. Intended especially for major students in Latin. *2 hrs., 1st semester* (ELMORE)

22. Roman History from original sources.—A careful study of a selected period. *2 hrs., 2d semester* (FOSTER)

GRADUATE COURSES

These courses are open to graduates in Latin, who have had at least two years' undergraduate work in Greek. The ability to read French and German is also very desirable, and, in the case of candidates for the degree of Ph. D., necessary. The aim of the courses is to give the student a thorough grasp and detailed knowledge of particular authors, and of certain periods and fields of literary activity, as well as a training in literary criticism, and an acquaintance with the methods of original research.

23. Latin Seminary.—In 1904-05 the Seminary will be devoted to the field of Roman lyric poetry, especially that of Catullus and Horace, and including Christian Latin hymns. The principal Greek exemplars will also be read. Students should provide themselves in advance with a text of Catullus, Tibullus, and Propertius by Müller (Leipzig, 1892) or Haupt (Leipzig, 1885). Recommended are editions of Catullus by Robinson Ellis (Oxford, 1876) and by Riese (Leipzig, 1884), also Smyth's Greek Melic Poets (Macmillan, 1900). Course 24 is an integral part of the seminary work, and courses 25, 26, 27, and 28 are closely allied to it.

2 hrs., both semesters (FAIRCLOUGH)

24. Lyric Poetry.—Lectures on the development of Greek and Roman Lyric Poetry, with assigned readings.

2 hrs., both semesters (FAIRCLOUGH)

25. Introduction to Latin Palæography.—Lectures and practice in reading fac-similes of manuscripts.

1 hr., 2d semester (FAIRCLOUGH)

26. Introduction to Latin Epigraphy.—Lectures and readings in the Corpus Inscriptionum.

1 hr., 1st semester (MARTIN)

27. Historical Grammar.—Lectures on the sounds and inflections of Latin. *2 hrs., 1st semester* (FOSTER)

28. History of Classical Philology.—Lectures.

1 hr., 1st semester (ELMORE)

29. Journal Club.—A club, composed of the instructors and graduate students, will meet monthly for reports on articles of interest in the current periodicals and on new books that appear.

SPECIAL COURSES

30. Roman Poets.—Selections in translation, with lectures and prescribed reading. This course is intended for general literary students. *2 hrs., 1st semester* (FAIRCLOUGH)

31. Roman Art and Monuments.—A survey of the topography, architecture, and sculpture of ancient Rome and the provinces, illustrated with lantern-slides. This course is open to all students. *2 hrs., 2d semester* (FAIRCLOUGH)

32. Roman Private Life.—Lectures, with illustrations from ancient art and other sources. Open to all, but of special importance to Latin students.

1 hr., 1st semester (MARTIN)

GERMANIC LANGUAGES

Professors JULIUS GOEBEL, JAMES OWEN GRIFFIN. Assistant Professors KARL G. RENDTORFF, WILLIAM ALPHA COOPER. Instructor CHARLES FREDERICK SCHMUTZLER.

The aim of the elementary classes in this department is to give the student a thorough knowledge of German grammar and to enable him to acquire facility in reading German. The more advanced classes take up the study of the poets and writers of the classical period, and it is intended to offer, by the reading and interpretation of these authors, an equivalent for the study of the ancient languages to those not

taking Latin or Greek in their University course. The general responsibility for the work of the first and second years rests with Professor GRIFFIN, that for the work in Literature and Philology, with Professor GOEBEL.

Students who intend to engage in preparatory teaching of German are expected to include courses 7, 8, 10, 11, 12, and 14.

1. Elementary.—German Grammar and German Reader; German Composition; translation of easy prose and poetry. Course 1 is intended for those beginning the study of the language. Four five-hour sections and one three-hour section. Students who have had training in Latin, and students who have some knowledge of German, but not sufficient to enable them to pass in entrance subject 20a, will be admitted to the three-hour section.

3 and 5 hrs., both semesters

(GRIFFIN, COOPER, SCHMUTZLER)

2a. Second-Year German.—Goethe's Götz von Berlichingen and Lessing's Prosa. [In 1904-05 Schiller's Maria Stuart and Goethe's Prosa will be read.] Advanced grammar and composition, translation at sight. Open to students who have completed course 1 or its equivalent, or who have received credit for entrance subject 20a.

3 hrs., both semesters

(GRIFFIN, COOPER, SCHMUTZLER)

2b. Rapid Reading.—The rapid translation of modern German prose; writing of German from dictation; paraphrasing of the German text. This course should be taken in connection with course 2a, which it is intended to supplement. So far as is consistent with a thorough understanding of the work the course will be conducted in German.

2 hrs., both semesters

(GRIFFIN, COOPER)

3. Scientific and Historical German.—The work in scientific German consists of the translation of monographs by leading German scientists. The work in Historical German consists of the rapid translation of modern historical and economic German. Essays published in current numbers of the Deutsche Rundschau and other leading German periodicals are studied. No student is advised to take this course

who has not had at least two years of thorough preparation in literary German. *2 hrs., both semesters* (COOPER)

4. Classical German Drama.—*a.* Schiller's *Wallenstein*, with lectures on the social and political conditions of the period. (First semester.) *b.* Goethe's *Iphigenie*, interpretation and lectures in connection with Kuno Fischer's *Essay on Iphigenie*. (Second semester.)

2 hrs., both semesters (GRIFFIN)

4a. Modern German Drama.—Lectures in connection with the interpretation and rapid reading of some of the more important works of the modern dramatists, Heyse, Wilbrandt, Sudermann, Hauptmann, Wildenbruch, etc.

2 hrs., both semesters (GRIFFIN)

5. Third-Year German.—Goethe's *Iphigenie* and Schiller's *Wallenstein*. [In 1904-05 Lessing will be studied during the first semester. The second semester will be devoted to the study of Goethe's *Tasso*.] During both semesters one hour of this course will be devoted to the reading of literary, scientific, and historical German prose.

3 hrs., both semesters (RENDTORFF)

6. Modern German Novels.—Cursory reading of standard novels by Scheffel, Freytag, Gottfried Keller, etc.

2 hrs., both semesters (RENDTORFF)

7. Advanced German Composition.—Translation of graded exercises covering the most important parts of German syntax. Writing of essays in German. Students must consult the instructor before registering in this course.

2 hrs., both semesters (RENDTORFF)

8. Deutsche Syntax.—Selected chapters of German syntax. Open to students who have completed course 7, or its equivalent.

1 hr., both semesters (RENDTORFF)

9. History of German Civilization.—This course is intended for students of German who wish to become more intimately acquainted with German history and the development of German civilization. A special study will be made of the periods of the Migrations, the Crusades, the Reformation, the Thirty-years' War, and the eighteenth and nineteenth centuries in their relation to German literature. Open to all students of German. *2 hrs., both semesters* (RENDTORFF)

10. Teachers' Course.—This course is intended for students who expect to become teachers of elementary German. Lectures and exercises. Open to advanced students only. [Not given in 1904-05.] *2 hrs., 1st semester* (GOEBEL)

11. Goethe.—Goethe's Lyrics. [In 1904-05 Goethe's Faust, First and Second Parts. Interpretation with lectures on the development of the Faust legend, the history of Goethe's Faust, and its philosophical and ethical ideas.]

2 hrs., both semesters (GOEBEL)

12a. History of German Literature from the Earliest Times to the Reformation. *2 hrs., both semesters* (RENDTORFF)

12b. History of German Literature During the Eighteenth Century.—Lectures and Readings. [Not given in 1904-05.]

2 hrs., both semesters (GOEBEL)

12c. History of German Literature During the Nineteenth Century.—The lectures will be given in German. [Not given in 1904-05.]

2 hrs., both semesters (RENDTORFF)

13. Poetics.—Lectures on the psychology and æsthetics of poetry as the basis for literary criticism. Comparative study of the principal theories of lyric, epic, and dramatic poetry from Aristotle to the present time. This course is open to all students of literature.

2 hrs., 2d semester (GOEBEL)

GRADUATE COURSES

The graduate courses in German, for which a thorough linguistic preparation is required, are intended especially for students who will make the teaching of German their later profession. Careful attention is given to the linguistic as well as to the literary training of the student, aiming at a comprehensive insight into the historical growth of the Germanic languages and literatures. The scientific methods of original and critical research are taught and practiced in the seminary. Such students as have given satisfactory proof of their ability as independent investigators will be admitted to the degree of Doctor of Philosophy, upon fulfilling the general requirements prescribed by the University.

Library facilities include the extensive library of the late Professor Hildebrand of Leipzig, which offers, on account of

the rare completeness of the collection in all branches of German philology and literature, extraordinary opportunities for graduate work in German.

14. Middle-High German.—Middle-High German Grammar, with readings from Weinhold's *Lesebuch*.

2 hrs., 1st semester (GOEBEL)

15. Nibelungenlied.—[In 1904-05 Walther von der Vogelweide will be interpreted.]

2 hrs., 2d semester (GOEBEL)

16. Old-High German and Old Saxon.—Old-High German and Old Saxon Grammar, with readings from Braune's *Lesebuch*.

2 hrs., 1st semester (GOEBEL)

17. Heliand.—Interpretation and lectures.

2 hrs., 2d semester (GOEBEL)

18. Old Norse.—Old Norse Grammar, with readings of Old Norse prose texts. (Holthausen's *Lesebuch*.)

2 hrs., 1st semester (GOEBEL)

19. Edda.—Interpretation of the heroic lays of the older Edda in their relation to the *Nibelungenlied*. [Courses 18 and 19 will not be given in 1904-05.]

2 hrs., 2d semester (GOEBEL)

20. Gothic.—Gothic Grammar and interpretation of select passages from Wulfila. *2 hrs., 2d semester* (GOEBEL)

21. Comparative German Grammar.—Lectures on the comparative grammar of the Old Germanic dialects.

2 hrs., 2d semester (GOEBEL)

22. German Seminary.—In 1903-04 the work of the Seminary was devoted to Herder during the first semester. During the second semester a special study was made of the history of the Germans in America and their influence upon American civilization. [In 1904-05 a special study will be made of Schiller.]

2 hrs., both semesters (GOEBEL)

ROMANIC LANGUAGES

Professor JOHN ERNST MATZKE. Associate Professor OLIVER MARTIN JOHNSTON.* Assistant Professors COLBERT SEARLES, CARL COSMO RICE. Assistant STANLEY SMITH.

The undergraduate courses in the Romanic Languages are planned so as to give students an intimate acquaintance with the modern forms of the languages spoken in the principal neo-latin countries. To this end systematic attention is paid to pronunciation, reading, syntax, and conversation. In the higher courses special emphasis is laid on the study of the literature of these countries. In order to give students an opportunity to become familiar with the spoken idioms, several of the advanced courses are conducted as much as possible in the language which forms the object of study.

Students will have the opportunity of selecting either French or Spanish as their major subject. In French a minimum of twenty-eight hours will be required for graduation, consisting of courses 2, 3, 4, 5, 6, 7, 8, and 9. In Spanish a similar requirement will include courses 10, 11, 12, 13, 14, 15, 16, and 17.

1. Elementary French.—Fraser and Squair's French Grammar and Reader, with written exercises and systematic training in French pronunciation on the basis of Matzke's Primer of French pronunciation; Aldrich and Foster's French Reader; Halévy, L'Abbé Constantin; Mérimée, Colomba. In this course the study of the language is taken up from the beginning. Stress is laid upon the acquisition, theoretical and practical, of a correct pronunciation, but no direct attempt is made to teach French conversation. The student's entire energy is concentrated upon the attainment of a full and accurate reading knowledge of the language, to which end grammar and composition are made systematically to contribute. Open to all, but students desiring to enter after the end of the second week will be admitted only upon special examination.

3 hrs., both semesters (SEARLES, RICE)

* Absent on leave, 1903-04.

2. Modern French Syntax.—Fraser and Squair, French Grammar. Open to students who have completed course 1, or who have received credit for entrance subject 19a.

2 hrs., both semesters (SEARLES, RICE)

3. Modern French Reading.—France, Le Crime de Sylvestre Bonnard; Daudet, Tartarin de Tarascon; Balzac, Eugénie Grandet; Hugo, Hernani; Rostand, Cyrano de Bergerac. Open to students who have completed course 1, or who have received credit for entrance subject 19a.

The section meeting at 9:15 will be open only to students selecting course 2, or having completed it, and will be devoted to more special study of syntax in connection with the reading. The remaining sections are intended to give general opportunity for obtaining a more perfect reading knowledge of the language.

2 hrs., both semesters

(SEARLES, RICE, SMITH)

4. French Conversation.—There will be three meetings of the class during the week, but no particular preparation will be required, and only one hour of credit will be given toward graduation. Open to students who have completed course 1, or who have received credit for entrance subject 19a.

1 hr., both semesters

(RICE)

[Courses 2, 3, and 4 constitute the second year's work in French, and should, if possible, be taken during the same year. Course 4 may not precede course 2.]

5. Classical French.—A study of the principal authors of the classical period. The following texts will be read: Corneille, Le Cid, Horace, Cinna; Racine, Andromaque, Athalie; Molière, Les Précieuses Ridicules, Tartuffe, Le Bourgeois Gentilhomme; Voltaire, Zaire; La Fontaine, Fables; Boileau, L'Art Poétique. Lectures on the development of French Literature in the seventeenth century. Open to students who have completed courses 2 and 3, or their equivalent.

3 hrs., both semesters

(SEARLES)

6. History of French Literature from the Renaissance to the Romantic Movement.—Lectures in French, supplemented by reading and reports by the members of the class. Open to students who have completed courses 2, 3, and 4, or their equivalent.

2 hrs., both semesters

(RICE)

7. History of French Literature in the Nineteenth Century.—Lectures, with reading of the principal authors and reports by the members of the class. Students should provide themselves with Pellissier, *Le mouvement littéraire au XIXe siècle* (Paris, Hachette, 1889). Open to students who have completed courses 5 or 6.

2 hrs., both semesters (MATZKE)

8. Advanced French Prose Composition.—Translation into French of selected English prose. Open to students who have completed course 2, or its equivalent.

1 hr., both semesters (RICE)

9. French Themes.—The course will be conducted entirely in French. Open to students who have completed courses 2, 3, and 4, or their equivalent.

1 hr., both semesters (JOHNSTON)

10. Elementary Spanish.—Loiseaux, *An Elementary Grammar of the Spanish Language*; Matzke, *First Spanish Readings*; Valdéz, José; Tamayo y Baus, *Un Drama Nuevo*. Open to all.

3 hrs., both semesters (SMITH)

11. Modern Spanish Syntax.—Ramsey, *A Text-book of Modern Spanish*. Open to students who have completed course 10, or who have received credit for entrance subject 18a.

2 hrs., both semesters (SMITH)

12. Modern Spanish Reading.—Ramos y Vital, *Zaragueta Galdós Marianela*; Caballero, *La Familia de Alvareda*; Moratín, *El Sí de las Niñas*; Zorilla, *Don Juan Tenorio*. Open to students who have completed course 10, or who have received credit for entrance subject 18a.

2 hrs., both semesters (SEARLES)

13. Spanish Conversation.—There will be three meetings of the class during the week, but no particular work will be required in preparation and only one hour of credit will be given toward graduation. Open to students who have completed course 10, or its equivalent.

1 hr., both semesters (—)

[Courses 11, 12, and 13 constitute the second year's work in Spanish, and should, if possible, be taken during the same year. Course 13 may not precede course 11.]

14. Classical Spanish.—Cervantes, *Don Quijote*; Lope de Vega, *La Estrella de Sevilla*; Calderón, *La Vida es Sueño*, and *El Mágico Prodigioso*; Téllez, *Don Gil de las Calzas Verdes*; Alarcón, *El Tejedor de Segovia*; Guillen de Castro, *Las Mocedades del Cid*; Moreto, *El Desdén con el Desdén*. Open to students who have completed courses 11 and 12.

2 hrs., both semesters (——)

15. Advanced Spanish Composition.—Ramsey and Lewis, *Progressive Exercises in Spanish Prose Composition*. Open to students who have completed course 11, or its equivalent.

1 hr., both semesters (——)

16. Spanish Themes.—The course will be conducted entirely in Spanish. Open to students who have completed courses 11, 12, and 13, or their equivalent.

1 hr., both semesters (——)

17. History of Spanish Literature.—Lectures, with reading of important works and reports by the members of the class. Students should provide themselves with Butler Clarke's *Spanish Literature* (Macmillan & Co., New York). Open to students who have completed course 14, or its equivalent.

3 hrs., both semesters (——)

18. Elementary Italian.—Sauer, *Italian Grammar*; Bowen's *First Italian Readings*; Manzoni, *I Promessi Sposi*; Goldoni, *Commedie Scelte*; Alfieri, *Oreste*. Open to students who have completed French, course 1, or Spanish 10, or who have received credit for entrance subject 18a or 19a.

3 hrs., both semesters (JOHNSTON)

19. Advanced Italian.—Dante, *La Divina Commedia*. Open to students who have completed course 18. [Course 19 will not be given in 1904-05.]

2 hrs., both semesters (JOHNSTON)

TEACHERS' COURSES

20. Phonetics.—Lectures on the organs of speech and the nature and formation of speech sounds with practical exercises on the pronunciation of French, German, and English. Intended particularly for teachers of language. Open only to advanced students.

2 hrs., 1st semester (MATZKE)

21. Teachers' Course in French.—Lectures on methods of teaching French, study of the available text-books and practical exercises in teaching French. Open only to advanced students. *2 hrs., 2d semester* (MATZKE)

[Courses 20 and 21 are given in alternate years; they will be omitted in 1904-05.]

GRADUATE COURSES

Courses of instruction for graduate students in Romanic philology and literature lead to the degrees of Master of Arts and Doctor of Philosophy and are planned for the benefit of specialists, particularly of such as are looking forward to become college teachers of the Romanic languages. Admission to regular standing in this department presupposes an undergraduate curriculum of study which has included Latin and French, and has afforded proficiency in at least one of the principal languages of the Romanic group (French, Spanish, or Italian). In addition to this, a good reading knowledge of German (for purposes of advanced study) is requisite.

22. History of Old French Literature.—Lectures on the history and development of French Literature from the beginning to the end of the fifteenth century.

2 hrs., both semesters (MATZKE)

23. French Historical Grammar.—Lectures on Old French Phonology and Morphology. Students should provide themselves with Schwan-Behrens, *Grammaire de l'Ancien Français*, traduction de Bloc (Leipzig, Reisland, 1900), Suchier, *Altfranzösische Grammatik* (Halle, Niemeyer, 1893), Körting *Lateinisch-Romanisches Wörterbuch* (Schöningh, Paderborn, 1901). One hour every week will be given up to practical philological exercises based on Paris's edition of *La Vie de Saint Alexis* (Paris, Vieweg, 1903), and Suchier's edition of *Aucassin et Nicolette* (Schöningh, Paderborn, 1899).

3 hrs., both semesters (MATZKE)

24. Old French Texts.—Translation of Old French texts from Bartsch, *Chrestomathie de l'Ancien Français*, revue par Horning (Leipzig, Vogel, 1901).

2 hrs., both semesters (RICE)

25. Old French Syntax.—Lectures.*1 hr.*

(JOHNSTON)

26. Old French Dialects.—Lectures and practical exercises.

[Course 26 will not be given during 1904-05.]

2 hrs., both semesters

(MATZKE)

27. Old Spanish.—Old Spanish Grammar with readings from Gorra, *Lingua e Letteratura Spagnuola delle origini* (Hoepli, Milan, 1898). [Course 27 will not be given during 1904-05.]

2 hrs., both semesters

(———)

28. History of the Spanish Theatre.—Lectures. [Course 28 will not be given during 1904-05.]

1 hr., both semesters

(MATZKE)

29. Seminary.—In 1903-04 the Seminary was occupied with the study of Molière. [In 1904-05 the work will be centered in Chrétien de Troyes.]

2 hrs., both semesters

(MATZKE)

30. Journal Club.—The instructors in the department and the advanced students meet regularly on alternate Thursdays for the discussion of the periodicals and new books.

ENGLISH LITERATURE AND RHETORIC

Professor MELVILLE BEST ANDERSON. Associate Professor ALPHONSO GERALD NEWCOMER. Assistant Professor RAYMOND MACDONALD ALDEN. Instructors SAMUEL SWAYZE SEWARD, JR., LEE EMERSON BASSETT, WILLIAM JONATHAN NEIDIG, EDWARD KIRBY PUTNAM, GEORGE CRAM COOK. Assistant JANE CARROLL BYRD.

Requirements for the Degree of Bachelor of Arts

a. The courses in Chaucer, Shakspeare, Milton, the Literature of the Eighteenth Century, the History of English Literature to the time of Dryden, besides such preliminary and other courses as may be requisite in each individual case.

b. Acquaintance with good usage in speech and the ability to write printable English.

c. A sound knowledge of at least one foreign language and its literature.

Teachers' Recommendation in English

Besides fulfilling the major requirements for the degree of Bachelor of Arts, students who desire the recommendation of the department as teachers of English will be expected to take courses in Vocal Training, Anglo-Saxon and Linguistic History, Versification, the Literature of the Nineteenth Century, the Teachers' Course in English, English and American History, and some branch of Biology (Physiology preferred). No candidate who is unable to give a satisfactory vocal interpretation of a piece of literature will receive the recommendation of the Department.

UNDERGRADUATE COURSES

1. Principles of Vocal Expression.—A general course in vocal training, the use of the voice in reading and speaking, and the elements of interpretative reading, with practice in the preparation and delivery of short speeches. Open to all.

2 hrs., both semesters (BASSETT)

2. Vocal Training.—A study of the action of the imagination in the vocal interpretation of literature. Open to all who have passed in course 1.

2 hrs., 1st semester (BASSETT)

3. Vocal Interpretation of Literature, based on studies in Shakspere, Browning, and Tennyson. Open to all who have passed in courses 1 and 2.

2 hrs., 2d semester (BASSETT)

4. Public Speaking.—Practice in the preparation and delivery of speeches, with a study of masterpieces of oratory. Open to all who have passed in course 8 and in the first semester of course 1.

2 hrs., 2d semester (BASSETT)

5. Introduction to Prose.—A general course, offering such guidance as is needed by first-year students of all departments. Several of the best English and American authors of the past century are studied with special reference to the qualities and varieties of prose style. Open to all.

3 hrs., 1st semester (NEWCOMER, NEIDIG, PUTNAM)

6. Introduction to Poetry.—With some attention to the elements of poetic form. Open to all.

3 hrs., 2d semester (SEWARD, NEIDIG, PUTNAM)

8. English Composition.—Narration, description, and exposition. Practice in taking notes and in making syllabi and abstracts forms a part of the course, the object of which is to develop habits of observation and accuracy of thought, as well as the power of expression. Open to second-year students who have passed in entrance subject 1.

2 hrs., both semesters (SEWARD, NEIDIG, PUTNAM)

9. Exposition and Argument.—Practice in the preparation and presentation of material in expository and argumentative form, with some study of models. Open to a limited number of students who have passed in course 8.

2 hrs., 1st semester (ALDEN)

10. Oral Debate.—Practice in the preparation and delivery of oral arguments, chiefly on current public questions. The work of the debater is criticised by the instructors, with reference to the gathering and handling of material, structure and style, and delivery. Open to a limited number of students, and in general only to those taking, or having taken, course 9. *2 hrs., both semesters* (ALDEN, DUNIWAY, BASSETT)

11. Narration and Description.—The principles of invention and the philosophy of style in their practical application to various forms of literary art. Open by recommendation from course 8.

2 hrs., both semesters (NEIDIG)

12. Teachers' Course in English.—Intended primarily for advanced students of English and for such others as satisfy the instructor of their fitness.

2 hrs., 2d semester (SEWARD)

13. Prosody.—A study of the principles and history of English versification. Open to English students in the third and fourth years; by permission to others who have passed in course 6.

2 hrs., 2d semester (ALDEN)

14. Formal Prose of the Nineteenth Century.—A study of critical tendencies in the fields of history, philosophy, art, and science, based chiefly upon the writings of Macaulay, Carlyle, Emerson, Ruskin, Arnold, and Huxley. Open to second-year students.

2 hrs., both semesters (NEWCOMER)

15. The English Novel.—English Prose fiction from Malory

to George Eliot. Open to students who have had ten hours in English; to others by permission.

2 hrs., both semesters (PUTNAM)

16. Early English Drama.—English dramatic literature from its origin to Shakspeare's immediate predecessors. Open to English students in the third and fourth years; to others by permission.

2 hrs., 1st semester (PUTNAM)

18. English Literature from 1660 to 1798.—The age of Dryden and the age of Pope (first semester); the age of Johnson and the early romantic revival (second semester). Open to students who have taken courses 5, 6, and 8 (preferably also 14), or their equivalent.

3 hrs., both semesters (ALDEN)

19. Representative English Poets of the Nineteenth Century.—a. Keats, Arnold, Rossetti, Morris, Swinburne (first semester). b. Tennyson (second semester). Lectures, discussions, and weekly papers. Open to English students in the third and fourth years; to others by permission.

3 hrs., both semesters (NEWCOMER)

20. English Literature from 1798 to 1832.—The age of Coleridge, Byron, Scott, and the Reviewers. Open to students of all departments in third and fourth years.

1 hr., both semesters (ALDEN)

21. American Literature.—A survey of American literary history; lectures and reports. Students are expected to possess the works of the chief poets, especially Bryant, Poe, Longfellow, Whittier, Emerson, Lowell, Whitman, and Lanier. Open to those who have taken courses 5, 6, and 8, or their equivalent.

3 hrs., both semesters (—)

22. Wordsworth and Shelley.—Lectures and interpretations. Open to students of all departments in the third and fourth years. [The Globe edition of Wordsworth, the Cambridge edition of Shelley.]

1 hr., both semesters (ANDERSON)

23. Milton.—The poetical works of Milton are read in alternate years, as follows:

a (1903). *Paradise Lost*.

b (1904). *The Early Poems, Paradise Regained, Samson Agonistes*.

Open to students of English in the third and fourth years; to students of other departments in the fourth year; to others only by permission.

3 hrs., 1st semester (ANDERSON)

24. Shakspeare: Introductory Course.—Lectures. The student is expected to read a considerable number of the plays and poems. Open to students of English in the third and fourth years; to students of other departments in the fourth year; to others only by permission.

3 hrs., 1st semester (ANDERSON)

25. Shakspeare: Advanced Course.—Groups of plays are read in successive years, as indicated below. The student may elect any one or more of these groups. The plays in each group are selected with a view to the illustration of the scope and variety of the author's powers and of the development of his art.

a (1904). The Comedy of Errors, The Merry Wives of Windsor, Much Ado About Nothing, Julius Cæsar, Macbeth, Cymbeline.

b (1905). A Midsummer-Night's Dream, Romeo and Juliet, Twelfth Night, King Lear, Coriolanus.

c (1906). Love's Labor's Lost, As You Like It, Hamlet, Antony and Cleopatra, The Tempest.

d (1907). Henry IV, Parts I and II, Henry V, The Merchant of Venice, Othello, The Winter's Tale.

Open to those who have passed in course 24; to others only by permission. *3 hrs., 2d semester* (ANDERSON)

26. The History of English Literature from Spenser to Milton.—Lectures. (A continuation of course 3, English Philology.) Open to students of English in the fourth year; to others only by permission.

2 hrs., 2d semester (ANDERSON)

27. Thesis.—In connection with the more advanced courses in literature the student may, by special permission of the instructor, undertake a piece of research, the results of which shall be embodied in a thesis.

1 hr., either semester

(ANDERSON, NEWCOMER, ALDEN)

GRADUATE COURSES

The preliminary requirements for entrance upon a course for an advanced degree in English are:

a. The course for the degree of A. B. in English, or its equivalent;

b. An elementary knowledge of Anglo-Saxon;

c. A sound knowledge of two foreign languages (preferably one ancient and one modern language).

28. The Development of English Prose, from the middle of the sixteenth century to the end of the eighteenth. Open to graduates, and to advanced undergraduates by permission.

2 hrs., both semesters (NEWCOMER)

29. Textual Criticism and Interpretation.—In 1903-04 Shakspeare's *Macbeth* and *The Tempest* were examined upon the basis of Furness's *Variorum* edition and Liddell's "Elizabethan Shakspeare." In 1904-05 it is proposed to take up two other plays in a similar way. Open to graduate students; to undergraduates only by invitation.

2 or 3 hrs., both semesters (ANDERSON)

30. Literary Criticism.—The history of English literary criticism, from the Elizabethan age to that of Matthew Arnold. The work consists of lectures and seminary reports. Open to graduate students, and to advanced undergraduates by permission.

2 hrs., both semesters (ALDEN)

 ENGLISH PHILOLOGY.

Professor EWALD FLÜGEL. Instructors SAMUEL SWAYZE SEWARD, JR., EDWARD KIRBY PUTNAM, ———.

UNDERGRADUATE COURSES

1. Anglo-Saxon.—*a.* Anglo-Saxon Grammar and translation of select passages in prose (first semester). *b.* Translation of select passages in prose and verse; outline of Historical English Grammar (second semester).

3 hrs., both semesters (SEWARD)

2a. Chaucer.—This course is an elementary one, and includes an outline of Middle English Grammar for the be-

ginner. Students having completed this course will be admitted in the second semester to the advanced course in Chaucer. Open to third-year students.

2 hrs., 1st semester (FLÜGEL, ———)

2b. Special Work in Chaucer.—An additional hour of credit will be given to students registered in course *2a* for additional work to be specially assigned.

1 hr., 1st semester (FLÜGEL)

3. History of Early English Literature.—Given as the first semester's work of course *26* in English Literature and Rhetoric.

2 hrs., 1st semester (FLÜGEL)

ADVANCED COURSES

4. Chaucer (Advanced Course).—Introduction to the study of Chaucer MSS. Interpretation of the prologue to the Canterbury Tales, alternating with an interpretation of some of the minor poems and lectures on the History of Chaucer Criticism.

2 hrs., 2d semester (FLÜGEL)

5. Beowulf. *2 hrs., 1st semester* (FLÜGEL)

7. English Ballads.—Lectures on the History of English Popular Poetry from the Earliest Times to the Eighteenth Century. [Not to be given in 1904-05.]

2 hrs., 1st semester (FLÜGEL)

8. History of English Prose Literature: From Malory to Tindale, including the History of the English Bible.

2 hrs., 2d semester (FLÜGEL)

10. Historical English Grammar.—Lectures. [Not to be given in 1904-05.] *2 hrs., both semesters* (FLÜGEL)

11. Middle English Exercises. [Not to be given in 1904-05.] *2 hrs., both semesters* (PUTNAM)

12. History of English Philology.—Lectures. *2 hrs., both semesters* (FLÜGEL)

13. English Palæography. *2 hrs., 2d semester* (FLÜGEL)

14. English Literature of the Reformation. *2 hrs., 2d semester* (FLÜGEL)

[Courses 3, 4, 5, 7, 8, 12, 13, and 14 will not be given in 1904-05.]

BIBLICAL HISTORY AND LITERATURE

Lecturers CHARLES REYNOLDS BROWN, DAVID CHARLES GARDNER,
JACOB VOORSANGER.

1. Life and Teaching of Christ.—The history of the life and times of Jesus, with a study of his words as recorded in the gospels and the application of his teaching to the life of to-day. Lectures, discussions, and papers, with a study of the religious forces in modern society.

1 hr., both semesters (GARDNER)

2. The Ethics of Christ.—The aim of the course is three-fold: to study the conduct and teaching of Christ as an exponent of morals; to interpret his words according to correct literary methods; and to apply the principles he inculcated to our present life. The materials for this study are the Four Gospels, and the consideration of those concrete human relations upon which their contents bear.

1 hr., 2d semester (BROWN)

3. The Life and Literature of the Early Hebrews.—A study of the historical, poetical, didactic, and prophetic books of the Old Testament according to modern literary methods. The limits of the course do not permit the discussion of technical questions of analysis, but students are instructed in the methods of modern Biblical study and in the results of recent scholarship in determining the processes which entered into the composition of this literature. The bearing of these results on the moral and religious life of our own time is naturally considered. The lectures are supplemented by a certain amount of suggested reading and of investigation by each student. [Course 3 alternates with course 4, and was given in 1903-04.] *1 hr., 2d semester* (BROWN)

4. Social Ethics.—A study of moral values as expressed and developed in the various domestic, industrial, political, philanthropic, and other social relations of common life. The general method is inductive and practical, addressing itself mainly to the study of conduct in its results. [Given in 1902-03.] *1 hr., 2d semester* (BROWN)

5. Framework of the Old Testament.—A course of sixteen

lectures presenting the archæological facts regarding the peoples and languages mentioned in the Scriptures as well as the literary sources that have contributed to the Old Testament, including the literary and text-critical treatment of each book. [To be given in 1904-05.]

1 hr., 1st semester

(VOORSANGER)

PSYCHOLOGY

Professor FRANK ANGELL. Assistant Professor LILLIEN JANE MARTIN.

1. General Psychology.—Lectures and Exercises. Not open to first-year students. *3 hrs., both semesters* (ANGELL)

2. Experimental Psychology.—Lectures, one hour; laboratory, two hours.

2 or 3 hrs., both semesters

(MARTIN)

3. Psychology of Humor.—Open to those who have completed course 1, or its equivalent.

2 hrs., 2d semester

(ANGELL)

4. Advanced Laboratory Work in Psychology.

3 hrs., both semesters

(ANGELL, MARTIN)

5. Psychology of the Emotions, with special reference to the Fine Arts. Open by permission to first-year students.

2 hrs., 1st semester

(MARTIN)

6. Psychology of the Social Relations.—Open by permission to first-year students. *2 hrs., 2d semester*

(MARTIN)

7. Current Psychological Literature.—In this connection a sub-section for the purpose of reading German Psychology will be formed, if so desired.

1 hr., both semesters

(ANGELL, MARTIN)

8. Systematic Psychology.—Open to those who have completed one year's work in Psychology.

2 hrs., 1st semester

(ANGELL)

9. Research Work.—Hours and conditions to be arranged.

(ANGELL, MARTIN)

EDUCATION

Associate Professor ELLWOOD P. CUBBERLEY. Assistant Professors EDWIN DILLER STARBUCK, DAVID SAMUEL SNEDDEN. Instructor ANTHONY HENRY SUZZALLO.

Only graduates and teachers of experience who desire to prepare for administrative work or for work in Education in Normal Schools, and whose preparation and experience are satisfactory to the Department, will be accepted as major students in Education.

The courses in Education are open to all students as electives or as minor subjects, but except in the above special cases the major subject should be chosen elsewhere.

1. Introduction to Educational Theories and Practice.—Lectures, assigned reading, and discussion. A study of educational principles and their application to the work of teaching, with a general consideration of the means and purposes of public education. This is an introductory course, and would best precede other courses in the Department. Open to second-year students. Required for the Teachers' Certificate unless a substitution is allowed.

2 hrs., both semesters (CUBBERLEY)

2. History of Education in Europe.—Lectures following a syllabus, assigned readings, and reports. A study of the development of educational ideals and systems from early times to the present, with particular reference to the forces which have operated in the evolution of the various historic ideals and types of schools. Open to second-year students.

3 hrs., both semesters (CUBBERLEY)

3. History of Education in America.—Individual investigation of selected problems in the history of administration and the development and extension of supervision in America. [This course will not be given in 1904-05.]

2 hrs., both semesters (SUZZALLO)

4. Elementary Schools.—Lectures, reports, and discussions. A study of prevailing aims, organization, and methods in elementary schools. There will be included some discussion of current problems in elementary education, and of the

general principles of method underlying the special methods in elementary subjects. This course should be taken by those who are preparing to teach in elementary schools.

3 hrs., 1st semester (SNEDDEN)

5. Secondary Schools.—A study of the work of the American secondary school in its various aspects, as preparatory, culture, commercial, manual training, and industrial; the purpose, value, and limitations of the various subjects of study; the work of teachers and principal; and the administration of secondary education. Open to fourth-year students. This course should be taken by those who are preparing to teach in secondary schools.

3 hrs., 2d semester (SNEDDEN)

6. School Management.—A practical course dealing with the relations of teachers to pupils, community, trustees, and superintendent, with particular reference to conditions prevailing in California. This will include a study of the essential features of California school law. This course should be included by those who have never taught.

2 hrs., 2d semester (SNEDDEN)

7. Education and Society.—A study of educational institutions in their relations to social development. Special attention will be given to the effects of recent social changes upon educational aims and practice. The various attempts to make education more effective for social purposes will be investigated, and also the special problems connected with the education of negroes, foreigners, and socially defective classes. Open to third-year students.

2 hrs., both semesters (SNEDDEN)

8. Courses of Study for Elementary Schools.—The more fundamental principles of education are studied with reference to their application to the formation and administration of courses of study for elementary schools. Each member of the class will carry on during the year a special study in some one subject of the elementary curriculum. A Saturday morning class, open only to teachers of experience.

2 hrs., both semesters (SNEDDEN)

9. The Principles of General Method.—An examination of the principles of general method and their application to

actual teaching. The work will involve a critical study of some of the recent contributions to educational literature, and the application of the principles of method to class-room work. A Saturday morning class, open only to teachers of experience. [Alternates with course 8, and will not be given in 1904-05.] *2 hrs., both semesters* (SNEDDEN)

10. City School Administration.—A study of some of the problems of city school administration, with visits to a few city systems in the vicinity. Intended primarily for those preparing for administrative work. Students should consult the instructor before registering.

2 hrs., 1st semester (CUBBERLEY)

11. American School Systems.—A comparative study of the chief features of American State school systems, with a view to discovering the points of strength and weakness in each. The course is primarily a study of State school administration, and is intended for those preparing for administrative work. Students should consult the instructor before registering. [This course will not be given in 1904-05.]

2 hrs., 2d semester (CUBBERLEY)

12. Thesis Work.—In certain courses, students will be given an additional hour of credit on presentation of a satisfactory thesis on an assigned topic, and embodying the results of independent work. The consent of the instructor is necessary before registering.

1 hr., both semesters

13. Special Courses.—Special work in independent research will be provided for students prepared to do advanced work, the nature of the investigation being determined by the student's preparation and needs. Such work will include studies in administration, statistics, educational history, and the curriculum. *Hours to be arranged* (CUBBERLEY, SNEDDEN)

14. Educational Psychology.—The problems of education and the practice of teaching considered from the standpoint of some of the facts of psychology and physiology. [This course will not be given in 1904-05.]

3 hrs., 1st semester (STARBUCK)

15. Child Study.—A consideration of the lines of growth of the various powers and functions of children, the charac-

teristics of the different growth periods, and their bearing upon the work of teaching. [This course will not be given in 1904-05.] *3 hrs., 2d semester* (STARBUCK)

16. School Hygiene.—A laboratory course, under the direction of the Department of Hygiene. [See Department of Hygiene, course 2.] *2 to 3 hrs., 1st semester* (SNOW)

17. Seminary in the Psychology of Childhood.—Researches chiefly by experimental methods, on the development of children. [This course will not be given in 1904-05.] *3 hrs., both semesters* (STARBUCK)

18. Journal Club.—Regular meetings of instructors and advanced students for the discussion of new books and current literature. *1 hr., both semesters* (CUBBERLEY, SNEDDEN)

COURSES IN OTHER DEPARTMENTS

The following courses in other departments will be accepted as part of the work of the Department of Education, though not more than four hours of such courses will be accepted for the Teachers' Certificate, and then only when the student has made preparation to teach the subject either as a major or as a minor.

a. Nature Study.—A course of practical work in nature study for students who expect to teach the subject in the public schools. Students must receive the permission of the instructors to register for this course. Presupposes at least one year of laboratory science. One two-hour lecture and demonstration period weekly. [Given by Professor JENKINS, of the Department of Physiology, and Professor KELLOGG, of the Department of Entomology.]

1 hr., 2d semester

b. Teachers' Course in Greek.—[See course 17 in the Department of Greek.] *2 hrs., 1st semester* (MURRAY)

c. Teachers' Course in Latin.—[See course 18 in the Department of Latin.] *2 hrs., 2d semester* (ELMORE)

d. Teachers' Course in German.—[See course 10 in the Department of Germanic Languages.]

2 hrs., 1st semester (GOEBEL)

e. Teachers' Course in French.—[See courses 20 and 21 in the Department of Romanic Languages.]

2 hrs., 2d semester (MATZKE)

f. Teachers' Course in English.—[See course 12 in the Department of English.] *2 hrs., 1st semester* (SEWARD)

g. Teachers' Course in Elementary Physics.—[See course 13 in the Department of Physics.]

1 hr., both semesters (SANFORD)

h. Physical Education.—[See course 6 in the Department of Hygiene.] (STOREY)

THE TEACHERS' RECOMMENDATION

[For regulations governing recommendation for the High School Teachers' Certificate, see p. 70.]

HISTORY

Professors MAX FARRAND, ARLEY BARTHLOW SHOW. Associate Professors CLYDE AUGUSTUS DUNIWAY, EPHRAIM DOUGLASS ADAMS. Instructor HENRY LEWIN CANNON.

1. History of Greece.—A general outline course with a preliminary survey of the Oriental civilizations, open to first-year students. *2 hrs., both semesters* (CANNON)

2. History of Rome.—A general outline course, open to first-year students. [Not given in 1904-05.]

2 hrs., both semesters (CANNON)

3a. The Early Middle Ages, 476-1095.—A general course, open to all students who have had one year in ancient history, or a satisfactory equivalent. *3 hrs., 1st semester* (SHOW)

3b. The Later Middle Ages, 1095-1492.—A continuation of course 3a. Open to all students who have had course 3a, or a satisfactory equivalent.

3 hrs., 2d semester (SHOW)

4a. English History to 1485.—General outline course, open to first-year students. *3 hrs., 1st semester* (CANNON)

4b. English History since 1485.—A continuation of course 4a. *3 hrs., 2d semester* (CANNON)

5a. Modern European History, 1500-1715.—A general outline course, open to students who have had courses 3a and 3b, or a satisfactory equivalent.

2 hrs., 1st semester (ADAMS)

5b. Modern European History, 1715-1900.—A continuation of course 5a.

2 hrs., 2d semester (ADAMS)

6. American Colonial and Revolutionary History to 1783.—Open to students who have taken courses 4a and 4b, or a satisfactory equivalent.

3 hrs., both semesters (DUNIWAY)

7. United States History, 1783-1844.—Open to students who have taken courses 4a and 4b, or a satisfactory equivalent. [Not given in 1904-05.]

3 hrs., 1st semester (FARRAND)

8. Constitutional and Political History of the United States since 1844.—A continuation of course 7. [Not given in 1904-05.]

3 hrs., 2d semester (DUNIWAY)

[Courses 7 and 8 will alternate with course 6. Together they will afford a survey of the field of American History.]

9. The Westward Movement in United States History.—The influence of the West upon the development of the United States. Not open to first-year students.

3 hrs., 2d semester (FARRAND)

10. Pacific Slope History.—Open to all but first-year students.

3 hrs., 1st semester (DUNIWAY)

11a. English Constitutional History to 1485.—Open to students who have taken courses 4a and 4b.

2 hrs., 1st semester

11b. English Constitutional History since 1485.—A continuation of course 11a.

2 hrs., 2d semester (CANNON)

12. Empire and Papacy in Middle Ages.—Open to third-year students, who have taken courses 3a and 3b. Subject in 1904-05 "The Age of the Hohenstaufen."

2 hrs., 1st semester (SHOW)

13. Italian Renaissance.—Open to third-year students, who have taken courses 3a and 3b. Subject in 1904-05 "Dante and His Times."

1 hr., 2d semester (SHOW)

14. Europe since 1789.—A selected subject for some par-

ticular period is studied. The subject for 1904-05 will be "English Parliamentary Opinion on the American Civil War." Open to third-year students who have taken courses 5a and 5b.

2 hrs., 1st semester

(ADAMS)

15. European Constitutions.—A comparative study of some selected feature of the constitutions of the more important states of continental Europe. Subject in 1904-05, "Limitations on Executive Authority." Open to third-year students, who have taken courses 5a and 5b.

2 hrs., 2d semester

(ADAMS)

18. Diplomatic History of the United States.—Primarily for third- and fourth-year students, who must have had at least two courses in modern history. [Not given in 1904-05.]

3 hrs., 2d semester

(DUNIWAY)

19. International Law.—Primarily for third- and fourth-year students, who must give evidence of a fair knowledge of modern history. It is mainly a study of the leading cases, with class discussion to develop (1) a statement of the general principles of international law, and (2) an outline of the history of the subject. [Not given in 1904-05.]

4 hrs., 1st semester

(DUNIWAY)

20. Oral Debate.—Open to a limited number of advanced students, and should be preceded by English 10. The course is intended to give training in the preparation of oral arguments on public questions in the fields of history, politics, economics, and sociology, and to afford experience in public speaking, with the benefit of criticism by the instructors.

2 hrs., both semesters

(DUNIWAY, ALDEN, BASSETT)

21. Historical Composition.—Every student taking history as a major subject is required to register with some instructor in the department for regular training in the gathering, critical handling, and presentation of historical material. The exact method to be followed will be determined by the instructor according to the needs of the individual student.

1 hr., each semester

22. Historical Bibliography and Criticism.—Open to third- and fourth-year students. *2 hrs., 1st semester* (FARRAND)

23. Teachers' Course.—Open only to advanced students.
[Not given in 1904-05.] *2 hrs., 2d semester* (SHOW)

ADVANCED COURSES

Intended primarily for graduate students, but open to advanced undergraduates, with permission of the instructors.

27. Painting of the Italian Renaissance.—A critical study of the life and works of one or more of the Florentines of the fifteenth century. Ability to read German and French is desirable. *2 hrs., both semesters* (SHOW)

28. Mediæval Institutions.—A practical study of select problems in the history of mediæval politics. Subject in 1903-04 was "The Italian Journey of Henry III, 1046." Ability to read Latin, German, and French is required. *1 hr., each semester* (SHOW)

30. Eighteenth Century English History.—Subject in 1904-05, "The Internal Affairs of England under William Pitt." *2 hrs., 2d semester* (CANNON)

31. Nineteenth Century English History.—Subject in 1904-05, "The Relation of Parties to Industrial Legislation before 1830." *2 hrs., both semesters* (ADAMS)

32. Constitutional History of the United States.—Subject for first semester, 1904-05, "Indian Relations after 1763." Subject for second semester, "The Formation of the Federal Constitution." *2 hrs., each semester* (FARRAND)

33. The Westward Movement.—Subject for first semester, 1904-05, "The American Occupation of California." *2 hrs., each semester* (FARRAND)

34. Later American History.—Critical Examination of selected topics. *2 hrs., 2d semester* (DUNIWAY)

35. Seminary in Modern European History.—Subject in 1903-04, "English Diplomatic Action during the French Revolution—First Period, 1788-1793." Reading ability in French required. *2 hrs., both semesters* (ADAMS)

36. Seminary in United States History.—Subject in 1904-05, "The Declaration of Independence." *2 hrs., 1st semester* (FARRAND, DUNIWAY)

37. Seminary in Later United States History.—Co-operative study of some selected topic. [Not given in 1904-05.]

2 hrs., both semesters (DUNIWAY)

38. Seminary in Pacific Slope History.—Subject in 1904-05, "Federal Relations of the Pacific States."

2 hrs., 2d semester (DUNIWAY)

39. History Club.—The instructors in the department and advanced students will meet monthly for reports on current historical literature and for the discussion of subjects of historical interest.

ECONOMICS AND SOCIAL SCIENCE

Associate Professor SIMON JAMES McLEAN. Assistant Professor HENRY ALVIN MILLIS. Instructor ALBERT CONSER WHITAKER.

Economics 1 must precede all other courses. Economic majors are also required to take Economics 2; along with this they may take either Economics 4, or Economics 10, followed by Economics 11.

1. Elements of Economics.—An introduction to the subject, designed for the general student as well as for those specializing in the department. Open to first-year students.

3 hrs., both semesters (McLEAN)

2. Principles of Economics.—An intensive study of the principles of Economics as developed in Economics 1. Required of Economic majors.

2 hrs., both semesters (MILLIS)

3. Economic Theory.—Nature and method of economic investigation, and the theory of value and distribution. Preferably taken in senior year.

2 hrs., both semesters (WHITAKER)

4. Money and Banking.—Functions of money; token and paper money; money in international trade; bimetalism and the silver question. The mechanism of credit and theory of banking; American and foreign banking systems; the money market.

3 hrs., both semesters (WHITAKER)

5. American Transportation: Its History and Problems.—The evolution of the railway system; railway geography; rate-making; governmental regulation; railway finances; the economic effects of water transportation, etc.

3 hrs., both semesters (McLEAN)

6. Corporations.—History of corporations in relation to public policy; elements of corporation accounting; "trusts" and industrial combinations; present tendencies in legislative control.

2 hrs., 1st semester (WHITAKER)

7. Industrial and Commercial Development of the Pacific Coast.—Economic side of the history of the Pacific States; present industrial and commercial resources of these states; American commerce on the Pacific with China and the Orient and through the Isthmian Canal. [Not given in 1904-05.]

3 hrs., 1st semester (WHITAKER)

8. Public Finance.—Expenditures, revenues, public debts, and financial administration, with especial reference to the practice of national governments.

3 hrs., 1st semester (MILLIS)

9. Local Finance.—This is a continuation of course 8. The object will be to make a comparative study of local finance in America and in European countries, and to familiarize the student with American practice. [Not given in 1904-05.]

3 hrs., 2d semester (MILLIS)

10. Industrial History of England.—The several stages in the industrial evolution of England will be studied, particular attention being given to the Industrial Revolution, and to the modern capitalistic system.

3 hrs., 1st semester (MILLIS)

11. The Labor Problem.—The course will cover the modern industrial system, wage system, collective bargaining, and other features of trade unionism, strikes, boycotts and lock-outs, arbitration and conciliation, factory legislation, workmen's insurance, profit-sharing, co-operation, and socialism.

3 hrs., 2d semester (MILLIS)

12. Financial History of the United States.—The federal finances, the tariff policy, and the monetary and banking history of the United States. Those who have not had

Public Finance and six hours' credit in American History will not be admitted without special consent.

3 hrs., 2d semester (MILLIS)

13. Statistics and Economics.—Statistical methods and results, with practice work in investigation, charting, and tabulation.

2 hrs., 2d semester (WHITAKER)

14. History of English Political Economy.—The mercantilists and other precursors of Adam Smith, including the French physiocrats. Selected readings from the chief English "Principles" of Political Economy. [Not given in 1904-05.]

2 hrs., 2d semester (WHITAKER)

15. Thesis.—In certain courses students are given an additional hour of credit on presentation of a satisfactory thesis embodying the results of independent work. Permission to register for thesis work must be obtained in each case from the major professor.

1 hr., either semester

16. Railway Regulation in the United States.—The development of a regulative policy to protect the public interests. Open to those who have had the course in American Transportation.

2 hrs., 1st semester (MCLEAN)

17. Railway Regulation in England.—The development of a regulative policy to protect the public interests. Open to those who have had the course in American Transportation.

2 hrs., 2d semester (MCLEAN)

LAW

Professor NATHAN ABBOTT. Assistant Professors CHARLES ROSS LEWERS, JOHN ELLWOOD BLAIR. Instructors JAMES TAYLOR BURCHAM, GEORGE LUTHER CLARK.

This Department* offers a three years' course of professional study leading to the degree of Bachelor of Laws and constituting a thorough preparation for the practice of law. The degree of Bachelor of Arts, or its equivalent, from this or from some other institution of recognized collegiate rank, is ordinarily a prerequisite to obtaining the degree of

* The Law Department of the Leland Stanford Junior University is a member of the Association of American Law Schools.

Bachelor of Laws. The first year of the law course, however, may be taken by undergraduates in the University and counted toward the degree of Bachelor of Arts. An exception also is made in the case of students over twenty-one years of age, as stated below.

Admission to the Courses in Law

There is no admission to the Department of Law independent of admission to the University. The student whose major subject is Law must enter the University either as an undergraduate, graduate, or special, according to the requirements stated on pp. 35-60. He is advised to enter in August, as the law courses begin then and continue throughout the year.

Undergraduates who intend to offer one year of law work toward the degree of Bachelor of Arts pursue, under the advice of the Faculty of Law, a general course of study preparatory to law, the study of which they begin after having received credit for work in the preliminary general course. English Composition (English 8) is required, and should be taken as early as possible. To such undergraduates work in law is open only as follows: In their first year in the University, none; second year,* Elementary Law; third year, Contracts and Criminal Law; fourth year, Property I, Torts, and Equity I; comprising altogether the first year of the law course. After receiving the degree of Bachelor of Arts, the student completes the second and third years of the law course, and becomes entitled to the degree of Bachelor of Laws.

Students entering with advanced standing from other institutions may take such law work as would be open to students with an equal standing obtained in this University, excepting that credit for work in law given elsewhere is not accepted by the Department until after examination as provided below, under the topic "Work in law done elsewhere."

Only the law courses enumerated above may ordinarily be counted toward the degree of Bachelor of Arts, but, by special permission of the Faculty of Law, students not in-

* In this connection a student has second year standing, when he has 20 hours of university credit; third year standing, when he has 50 hours; and fourth year, when he has 80 hours.

tending to practice law may substitute such courses as will aid them in other pursuits.

Students admitted to graduate standing† in the University may complete the law course in three years receiving the degree of Bachelor of Laws.

Regular students over twenty-one years of age and special students may, by special permission, complete the law course in three years, without doing other University work; but degrees will be conferred upon such students only as stated below under "Degrees."

In general the second-year courses are open only to students who have completed all the first-year courses, and the third-year courses are open only to students who have completed at least five second-year courses. Such students may also take other second-year courses.

[For the present, some of the second- and third-year courses are given only in alternate years, so it may be necessary for students admitted to the second-year courses to take some third-year courses, and *vice versa*.]

Work in Law Done Elsewhere

Work in law done elsewhere will not be accepted by the Department, except upon satisfactory examination in all the subjects offered; but students who have done law work elsewhere may be admitted provisionally to such courses here as their previous work justifies, taking examinations later. Examinations may be taken as follows: (a) in *all* subjects at the end of the spring semester, in May; (b) in *first-year* subjects at the opening of the fall semester, in August; (c) on request, entering students will be given examinations in second- and third-year subjects at the opening of the fall semester. By special permission, any of these examinations may be taken elsewhere, but application for such permission must be made not later than April 1st for the spring examinations, and August 1st for the fall examinations. For these examinations the applicant should prepare himself by a study of the books used in the several courses.

† In this connection a student has graduate standing when he has 120 hours of university credit.

Moot Courts

Voluntary moot courts are held under the advice of the Law Faculty, and it assists in the selection of cases for argument, but no credit is given for work done in moot court.

Library

The Law Library contains complete sets of all English and Irish reports, and those of the leading American jurisdictions, most of the Canadian reports, all the recent American reports, and a large number of text-books and works of reference on legal topics.

Degrees

Students of the University whose major subject is Law, on completing the first-year law courses, English 8, and satisfying all other University requirements, will receive the degree of Bachelor of Arts.

Students who have received the degree of Bachelor of Arts, or its equivalent, from this or from some other institution of recognized collegiate rank, and who have completed fifteen courses in law, exclusive of Elementary Law and the Special Courses in Law, will be given the professional degree of Bachelor of Laws.

Regular students over twenty-one years of age and special students who have completed fifteen courses in law including the first year's courses, with distinguished excellence, in residence at the University, will also be given the degree of Bachelor of Laws.

Courses of Instruction

The following courses were offered in 1903-04, except as noted:

PRELIMINARY COURSE

1. Elementary Law.—Lectures. No text-books. This course is designed to give students in the Law Department an introduction to the regular courses in law, and to give other students some general legal conceptions. Three lecture hours weekly. [Open to students of all departments who have twenty hours of University credit.]

2 hrs., both semesters

(ABBOTT, LEWERS, BLAIR, BURCHAM, CLARK)

FIRST-YEAR COURSES

2. **Contracts.**—Text-book: Williston's Cases on Contracts.
3 hrs., both semesters (CLARK)
3. **Criminal Law and Procedure.**—Text-book: Beale's Cases on Criminal Law. May's Criminal Law is recommended for reading in connection with this course.
3 hrs., both semesters (LEWERS)
4. **Torts.**—Text-book: Ames and Smith's Cases on Torts.
3 hrs., both semesters (CLARK)
5. **Property I.**—Text-book: Gray's Cases on Property, Vols. I and II. 3 hrs., both semesters (ABBOTT)
6. **Equity I.**—Text-book: Ames's Cases on Equity Jurisdiction, Vol. I. 2 hrs., both semesters (BURCHAM)

SECOND-YEAR COURSES

7. **Agency.**—Text-book: Wambaugh's Cases on Agency.
2 hrs., both semesters (BURCHAM)
8. **Bills and Notes.**—Text-book: Ames's Cases on Bills and Notes. 3 hrs., both semesters (BURCHAM)
- 9a. **Damages.**—Text-book: Beale's Cases on Damages.
- b. **Public Service Companies.**—Text-book: Beale and Wyman's Cases.

These two subjects taken together, comprise one course and cannot be taken separately. [Omitted in 1903-04.]

- 2 hrs., both semesters (LEWERS)
10. **Equity II: Trusts.**—Text-book: Ames's Cases on Trusts. 2 hrs., both semesters (LEWERS)
11. **Evidence.**—Text-book: Thayer's Cases on Evidence (2d ed.). This course, when possible, should be preceded by Pleading. 3 hrs., both semesters (BLAIR)
12. **Persons.**—Text-book: Woodruff's Cases. [Omitted in 1903-04.] 2 hrs., both semesters (ABBOTT)
13. **Pleading.**—Text-book: Ames's Cases. 2 hrs., both semesters (CLARK)
14. **Property II.**—Text-book: Gray's Cases on Property, Vols. III and IV. 3 hrs., both semesters (ABBOTT)

15. **Sales.**—Text-book: Williston's Cases on Sales.

2 hrs., both semesters (BLAIR)

16. **Suretyship and Mortgages.**—Text-book: Ames's Cases on Suretyship and Wyman's Cases on Mortgages.

3 hrs., both semesters (LEWERS)

THIRD-YEAR COURSES

17. **Conflict of Laws.**—Text-book: Beale's Cases on Conflict of Laws. [Omitted in 1903-04.]

2 hrs., both semesters (CLARK)

18. **Constitutional Law.**—Text-book: Thayer's Cases on Constitutional Law. [Open also to well-prepared fourth-year students in History and Economics. Omitted in 1903-04.]

3 hrs., both semesters (BURCHAM)

19. **Corporations.**—Text-book: Smith's Cases on Corporations.

3 hrs., both semesters (BLAIR)

20. **Equity III.**—Text-book: Ames's Cases on Equity Jurisdiction, Vol. II. [Omitted in 1903-04.]

2 hrs., both semesters (BURCHAM)

21. **Partnership.**—Text-book: Ames's Cases on Partnership. [Omitted in 1903-04, and alternating thereafter with Sales.]

2 hrs., both semesters (BLAIR)

22. **Property III.**—Text-book: Gray's Cases on Property, Vols. V and VI.

3 hrs., both semesters (ABBOTT)

SPECIAL COURSES

23. **California Practice.**—Text-book: California Code of Civil Procedure.

1 hr., both semesters (—)

24. **International Law.**—Text-book: Snow's Cases on International Law. [See course 19 in History.]

2 hrs., both semesters (DUNIWAY)

DRAWING

Associate Professor ARTHUR BRIDGMAN CLARK. Assistant Professor GEORGE LOFTUS NOYES. Instructor CHLOE LESLEY STARKS.

The Department aims to meet the needs of three classes of students: students who wish training in artistic perception

and graphic expression, for its general culture value; students who wish to begin their professional art study while still receiving other University training; and technical students, to whom some drawing is essential.

1. Elementary Drawing.—Introductory course. The habits of visual observation and graphic expression which underlie all representative art are given such exercise as is possible in the time. To this end, boxes, vases, and other simple forms are used as models. The emphasis is placed equally on accuracy of proportion, ensemble of light and shade, and a free, natural, direct technical method. While registration for two hours is permitted, at least three hours (nine actual working hours per week) is needed as preparation for other courses in the Department. Open to all students.

2 to 5 hrs, 1st semester (STARKS)

2. Elementary Drawing of the Head.—Drawing the head from the cast. Open to students with a satisfactory record in course 1.

3 to 5 hrs, 2d semester (NOYES)

3. Advanced Drawing of the Head.—A continuation of course 2 from life. Students will use pencil, charcoal, or oil paint as the instructor may advise. Open to second-year students.

3 to 5 hrs., either semester (NOYES)

4. Color.—Still-life painting in oil paints as an introduction to the subject. Students with sufficient skill in the use of oil may use water colors as a medium. Open to second-year students.

2 to 5 hrs., either semester (NOYES)

5. Landscape.—Chiefly outdoor work; but supplemented during the colder weather of each semester by study from drawings and photographs, with special attention to decorative composition. The pen, brush (monochrome), pencil, and charcoal are used according to the needs of each individual. Open to students who have made a satisfactory showing in course 1.

3 to 5 hrs., either semester (CLARK)

6. Lectures.—Ideals and processes in pictorial and applied art. Open to all but first-year students.

2 hrs., 1st semester (CLARK)

7. Journal Club.—Discussion of modern and current art. Open to advanced students of the Department.

1 hr., 2d semester (CLARK)

8. Scientific Perspective.—This course deals with the mathematical principles of perspective in solving problems on the drafting-board, and with the application of the principles in drawings of actual buildings, landscape, and figures from nature. [Course 8 is given in alternate years; will be given in 1904-05.] *2 hrs., 2d semester* (CLARK)

9. Scientific Drawing.—A course designed to assist students in natural history laboratories. It will include the drawing of simple scientific subjects in pen outline, line and stipple shading, wash, and line and wash. Especial attention will be paid to needs of individual students. Open to students completing course 1.

2 hrs., both semesters (STARKS)

Fees

Courses 1 and 4, fifty cents; course 3, five dollars (subject to a rebate according to number in class); course 5, seventy-five cents.

MATHEMATICS

Professors ROBERT EDGAR ALLARDICE, RUFUS LOT GREEN. Associate Professor GEORGE ABRAM MILLER. Assistant Professor HANS FREDERICK Blichfeldt.

The courses in this Department have been arranged to meet the wants of two classes of students: students whose major subject is Mathematics, and students who, while taking their major in some other department, desire to include some mathematics in their course. Students in engineering are provided for in the Department of Applied Mathematics.

For students whose major subject is Mathematics the following program of work is recommended: in the first year, courses 2, 3, and 4; in the second year, courses 9 and 10; in the third year, courses 11 and 12; while the work during the fourth year and for graduate students may be selected from

the remaining courses, and from the Department of Applied Mathematics. The advanced courses will, for the most part, be given once in two or once in three years, and it is hoped that the advanced students will thus have the opportunity of studying the more important branches of modern mathematics.

Students whose major subject is Mathematics are recommended to begin the study either of French or of German in their freshman year.

Students who desire to take one or more years of mathematics as a part of a liberal training are recommended to begin their work in this department with one or more of the courses 1, 2, 3, 4.

1. Trigonometry.—Elementary course, with applications involving logarithmic calculation.

2 hrs., 1st semester (MILLER)

2. Solid Geometry.—Elementary course.

2 hrs., 2d semester (MILLER)

3. Geometry.—This course includes a discussion of some of the more modern developments of Synthetic Geometry. Open to students who have credit for Plane Geometry as an entrance subject. *2 hrs., both semesters* (BLICHFELDT)

4. Algebra.—Fundamental laws, degree, symmetry, indeterminate coefficients, remainder theorem, factors, complex numbers, introduction to theory of equations, progressions, permutations, and combinations. Presupposes entrance credit in Elementary Algebra.

3 hrs., both semesters (GREEN)

Students making Mathematics their major subject should take courses 3 and 4 as the first year's work, and those who have not had trigonometry should also take course 1.

5. Determinants.—Elementary course. Presupposes course 4. [Not given in 1904-05.]

2 hrs., 1st semester (BLICHFELDT)

6. Non-Euclidean Geometry.—Presupposes a course in Calculus. [Not given in 1904-05.]

2 hrs., 2d semester (BLICHFELDT)

9. Introduction to the Calculus.—Limits, indeterminate

forms, series, partial fractions, differentiation, simpler methods of integration, with applications. Presupposes course 4.

2 hrs., both semesters (GREEN)

10. Co-ordinate Geometry.—An elementary course in the analytic geometry of the conic sections, including the discussion of the general equation of the second degree. Presupposes course 4. *3 hrs., both semesters* (BLICHFELDT)

Courses 9 and 10 form the regular work, during the second year, for students whose major subject is Mathematics.

11. Modern Analytic Geometry.—Homogeneous co-ordinates, including line co-ordinates, projective properties of conics, systems of conics. Introduction to general theory of curves. Presupposes course 10.

2 hrs., both semesters (GREEN)

12. Differential and Integral Calculus.—Lectures on the Differential and Integral Calculus, with applications to the theory of plane curves, on the lines of Williamson's treatises.

3 hrs., both semesters (BLICHFELDT)

13. Advanced Calculus.—A continuation of course 12. [Not given in 1904-05.] *2 hrs., 1st semester* (ALLARDICE)

14. Theory of Functions.—Elementary course. [Not given in 1904-05.] *2 hrs., 2d semester* (ALLARDICE)

15. Differential Equations.

3 hrs., both semesters (BLICHFELDT)

16. Definite Integrals.—[Not given in 1904-05.]

2 hrs., 2d semester (ALLARDICE)

17. Theory of Functions.—Extended course. [Not given in 1904-05.] *3 hrs., both semesters* (ALLARDICE)

18. Theory of Equations.—Including an introduction to the theory of binary algebraic forms.

3 hrs., both semesters (GREEN)

19. History of Elementary Mathematics.—[Not given in 1904-05.] *2 hrs., 1st semester* (MILLER)

20. General Astronomy.

2 hrs., both semesters (MILLER)

21. Projective Geometry.

2 hrs., 1st semester (MILLER)

22. **Elementary Theory of Groups.**
3 hrs., both semesters (MILLER)
23. **Theory of Numbers.**
2 hrs., 2d semester (MILLER)
24. **Seminary: Theory of Groups.**—[Not given in 1904-05.]
2 hrs., both semesters (MILLER)
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APPLIED MATHEMATICS

Professor LEANDER MILLER HOSKINS. Instructors HALCOTT CADWALADER MORENO, WILLIAM ALBERT MANNING. Assistant ELMER GEORGE BRUA.

Under Applied Mathematics are included the courses in mathematics which are required of students in Engineering. The aim is to make these courses practical in the sense of furnishing thorough drill on fundamental principles and much practice in their application. Emphasis is laid upon accuracy and system in the solution of numerical problems.

Courses 1, 2, 3, and 4 should be taken during the first year, and courses 5 and 6 during the second year. Students deficient in any of the first-year work cannot be admitted to second-year courses.

[The special examinations referred to under courses 1 and 3 will be held at 2 p. m. on the first registration day at the opening of the first semester.]

1. **Algebra.**—This course presupposes Elementary Algebra, the equivalent of entrance subject 2. Entrance credit in Advanced Algebra (subject 6) is not accepted as equivalent to this course, which is required of all who intend to take any following course in Applied Mathematics, except such as pass a special examination.

5 hrs., 1st semester (MORENO, MANNING)

2. **Solid Geometry.**—This presupposes Plane Geometry, and is not required of those having entrance credit in Solid Geometry.

2 hrs., 1st semester (MORENO)

3. **Trigonometry.**—Plane and Solid Geometry are prerequisites. Entrance credit in Trigonometry (subject 5) is

not accepted as equivalent to this course, which is required of all intending to take any following work in Applied Mathematics, except those who pass a special examination. In 1904-05 this course will be given each semester.

3 hrs., 2d semester (MORENO, BRUA)

4. Co-ordinate Geometry.—This must be preceded by courses 1, 2, and 3 (or may be taken concurrently with 3).

5 hrs., 2d semester (MORENO, MANNING)

5. Calculus. *3 hrs., both semesters* (MORENO, MANNING)

6. Theoretical Mechanics.—An elementary course, covering the fundamental principles of Statics, Kinematics, and Kinetics, restricted mainly to coplanar forces and to plane motion of particles and of rigid bodies. An elementary treatment of Graphic Statics is included. The course is designed as a preparation for the courses in Applied Mechanics taken by students of Engineering, but is open to all whose preparation includes the equivalent of courses 1, 2, 3, and 4. Calculus must either precede this course or be taken at the same time.

5 hrs., both semesters (HOSKINS)

PHYSICS

Professor FERNANDO SANFORD. Associate Professor HERMAN DE CLERCQ STEARNS. Assistant Professors SAMUEL JACKSON BARNETT, FREDERICK JOHN ROGERS. Instructor JOSEPH GRANT BROWN.

1. Dynamics.—Including hydrostatics and pneumatics. Open only to students who have had algebra and plane geometry. This course or its equivalent is required as a preparation for each of the courses following. One lecture and two or three laboratory periods per week. All students are urged to register for four hours if they can spare the time.

3 or 4 hrs., either semester (ROGERS, BROWN)

2. Electricity and Magnetism.—One lecture and two or three laboratory periods per week.

3 or 4 hrs., either semester (BARNETT, ROGERS)

3. Heat.—One lecture and two laboratory periods per week. Open to students who have had course 1.

3 hrs., either semester (STEARNS)

4. Sound.—Including wave-motion. Open to students who have had course 1.

2 hrs., 1st semester (STEARNS)

5. Elementary Optics.—Open only to students who have had trigonometry. Only a small class can be accommodated, and the preference will be given to students who need this training for their major subject. Two laboratory periods per week.

2 hrs., either semester (SANFORD)

Courses 1, 2, 3, 4, and 5 constitute a course in general Physics, and are intended to precede the advanced courses.

6. Heat, Sound, and Light.—This is a special course designed for students who cannot spare the time required for courses 3, 4, and 5. Two lectures and two laboratory periods per week.

4 hrs., 2d semester (SANFORD, STEARNS)

7. Electricity and Magnetism.—An introductory course, open only to students of engineering who have received entrance credit in Physics. Two lectures and two laboratory periods per week.

4 hrs., either semester (BARNETT, ROGERS)

8. Experimental Optics.—For major students in Physics. A few others will be admitted by special arrangement. Two laboratory periods per week.

2 hrs., both semesters (SANFORD)

9. Electrical Theory and Measurements.—Open to students who have taken course 2 or course 7 and who have taken or are taking calculus.

3 hrs., both semesters (BARNETT)

10. Investigation of Original Problems in the Laboratory.

Hours to be determined in each case (SANFORD)

11. General Physics.—Lectures. Open to students who have had courses 1, 2, 3, 4, and 5, or their equivalent.

3 hrs., both semesters (SANFORD)

12. Electrical Theory.—Based largely upon the instructor's *Elements of Electromagnetic Theory*. Open to students who have taken course 2 or course 7, and calculus.

3 hrs., both semesters (BARNETT)

13. Teachers' Course in Elementary Physics.—Open to students who have had courses 1, 2, 3, 4, and 5, or their equivalent. *1 hr., both semesters* (SANFORD)

14. General Thermodynamics.—Open to students who have had calculus and course 3, or its equivalent.

3 hrs., 1st semester (STEARNS)

15. Vibratory Motion.—A theoretical course consisting of recitations and lectures illustrated by occasional lecture experiments and a few carefully executed laboratory experiments. A knowledge of differential and integral calculus is required.

3 hrs., 1st semester (ROGERS)

16. The Kinetic Theory of Gases.—Open to students who have had calculus and course 3, or its equivalent.

2 hrs., 2d semester (STEARNS)

17. History of Physics.—Lectures and readings on the history of physical science with special reference to the development of theories. The first five courses in physics are required before entering this course.

2 hrs., 2d semester (ROGERS)

18. Electrical Theory, Advanced Course.—Selected parts of the subject. Open to students who have taken course 12.

2 or 3 hrs., both semesters (BARNETT)

19. The Magnetism of Iron.—Open to students who have taken course 7.

2 hrs., 2d semester (BARNETT)

Course 6 in Applied Mathematics is also recommended for major students in Physics.

Laboratory Fees

Course 1, three or four dollars (four dollars for four hours); courses 2, 3, 6, and 7, three dollars per semester; courses 4, 5, and 8, two dollars per semester. In courses 9 and 10, the fee will depend upon the number of hours credit and the apparatus used, but will not exceed five dollars per semester.

CHEMISTRY

Professors JOHN MAXSON STILLMAN, LIONEL REMOND LENOX. Associate Professors STEWART WOODFORD YOUNG, EDWARD CURTIS FRANKLIN. Assistant Professor ROBERT ECKLES SWAIN. Instructor ALVIN JOSEPH COX.* Assistants JOHN PEARCE MITCHELL, WILLIAM HENRY SLOAN, ROBERT WILLIAM DODD, FLORENCE JULIA ROSS, WILLIAM ELMER CRAWFORD, ETHEL WINONA GRAVES, CARLTON CHENEY JAMES.

I. LECTURE COURSES

1. **General Inorganic Chemistry.**—Comprising a systematic treatment of elementary principles and the properties of more important elements and their compounds. In connection with laboratory course *a*, and open in connection with that course, to all students in the University.

2 hrs., both semesters (SWAIN)

2. **Advanced Inorganic Chemistry.**—Discussion of special subjects in inorganic chemistry and of the elements of chemical theories. Open to all students who have completed courses 1 and *a*, and required of all students whose major is Chemistry. [Beginning 1904-05.]

3 hrs., both semesters (STILLMAN)

3. **Organic Chemistry.**—Lectures and reviews on the Chemistry of Carbon Compounds. Open to students who have completed courses 1 and *a*.

2 hrs., both semesters (FRANKLIN)

4. **Industrial Chemistry.**—Lectures on the processes of chemical arts and industries—fuels, acid and alkali manufacturing, glass, explosives, sugar-making and refining, petroleum, etc. Lectures in this course are also given by Professor LENOX (Iron and Steel) and by Professor FRANKLIN (Dyes). Open to students who have completed courses 2 and 3; or may be taken concurrently with course 3.

2 hrs., both semesters (STILLMAN)

5. **History of Chemistry.**—Open to students who have completed courses 2 and 3. [Not to be given in 1904-05.]

2 hrs., 1st semester, in alternate years (STILLMAN)

* Absent on leave, 1903-04.

6. Qualitative Analysis.—In connection with laboratory course *b*. *1 hr., either semester* (LENOX)

7. Advanced Organic Chemistry.—Advanced topics in Organic Chemistry, including Stereo-Chemistry. Open to students who have completed course 3. [Will be given in 1904-05.] *2 hrs., 1st semester, in alternate years* (FRANKLIN)

8. General Physical Chemistry.—Lectures covering as far as possible the whole field of physical chemistry. Open to students who have completed course 2 in Chemistry, courses 3 and 4 in Mathematics (completion of course 12 in Mathematics is also urgently advised), and courses 1 and 2 in Physics. *3 hrs., both semesters* (YOUNG)

9. Physical-Chemical Measurements.—An informal course of lectures given as needed in connection with course *f*. *(No credit)* (YOUNG)

10. Theories of Analytical Chemistry. *1 hr., 2d semester* (YOUNG)

11. Physiological Chemistry.—A brief survey of the field of Physiological Chemistry. Open to students who have completed courses 3 and *d*, and Physiology 1. *2 hrs., both semesters* (SWAIN)

12. Seminary in Chemistry.—Discussion of assigned topics in theoretical and general chemistry. Open to graduate students, and to advanced undergraduates in Chemistry, with the approval of the Faculty in Chemistry. *1 hr., both semesters*

II. LABORATORY COURSES

a. General Inorganic Chemistry.—First semester: Illustrating fundamental laws and principles of elementary chemistry. Second semester: Inorganic preparations and general chemistry. Students with entrance credit in chemistry may be excused from the first semester's laboratory work. In connection with course 1. *2 afternoons, both semesters* (SWAIN, CRAWFORD, GRAVES, JAMES)

b. Qualitative Analysis.—Open to students who have completed courses 1 and *a*. *3 afternoons, either semester* (LENOX, MITCHELL)

c. Preparation of Typical Carbon Compounds.—Open in connection with course 3 to students who have completed course *b*. Either one or two semesters, one semester required for graduation of Chemistry majors.

3 afternoons, either or both semesters (FRANKLIN)

d. Quantitative Analysis.—Training in manipulation in gravimetric and volumetric methods. Work begins either semester. Students in other departments than Chemistry may register for three afternoons if they cannot arrange for four, as is recommended. Open to students who have completed courses 6 and *b*.

4 afternoons, either semester (STILLMAN, SLOAN)

e. Mineral Analysis.—Systematic analysis of representative minerals. Open to students who have completed course *d*, and required of students whose major subject is Chemistry, unless *f* or *h* be elected instead.

4 afternoons, either semester

(STILLMAN, LENOX, SLOAN)

f. Physical-Chemical Measurements.—Exercises in the practice of physical-chemical laboratory methods. Open to students who have completed or are taking course 8, and who have completed course *d*.

3 or 5 hrs., either semester (YOUNG)

g. Physical-Chemical Research.—Special problems for original investigation in the field of Physical Chemistry. Open to students who have completed course *f*.

Hours to be arranged (YOUNG)

h. Physiological Chemistry.—A laboratory course embracing a study of the various tissues and fluids of the body and of the chemistry of digestion and excretion. Requirements as under lecture course 11.

3 hrs., both semesters (SWAIN)

i. Urine Analysis.—Open to students who have completed course *d*. [Not given in 1903-04.]

3 or 4 afternoons, either semester (SWAIN)

j. Special Methods in Mineral Analysis.—Chiefly volumetric, including iron and steel analysis. Open to students who have completed course *d*.

4 afternoons, 2d semester (LENOX)

k. Organic Chemistry Research.*Hours to be arranged* (FRANKLIN)

l. Sugar Analysis.—Methods of analysis used in sugar manufacture and refining. Open to students who have completed course *e*.

3 or 4 afternoons, 1st semester (STILLMAN)

m. Organic Analysis.—Open to students who have completed courses *d* and *e*.

2 afternoons, either semester (FRANKLIN)

n. Assaying.—Open to students who have completed course *d*.

3 afternoons, either semester (LENOX, DODD)

o. Sanitary Water Analysis.—Open to students who have completed course *d*.

3 afternoons, 2d semester (STILLMAN)

Candidates for the degree of Bachelor of Arts in Chemistry will be required to complete courses 1, 2, 3, 6, *a*, *b*, *c* (one semester), *d*, and *e* or *f* or *h* in Chemistry, course 1 in Physics, courses 1 and 2*a* in German. But candidates who are looking forward to Medicine or Pharmacy as a career, are permitted to substitute Physiology 1 for Physics 1 when it is not practicable for them to take both, and to substitute Physiological Chemistry or Urine Analysis for *e* or *f*.

III. CHEMICAL ENGINEERING

In recognition of an increasing field of activity for men qualified to occupy positions as superintendents and managers of manufacturing enterprises involving chemical processes, it has been arranged in co-operation with the departments of Civil Engineering and Mechanical Engineering, to offer students the opportunity to obtain such training as will best qualify them for such positions. Experience shows the great advantage in these positions of fundamental training in principles of construction, strength of materials, steam engineering, machine designing, combined with thorough chemical training.

The degree of Engineer in Chemical Engineering will be conferred upon completion of the following courses: Chemistry 1, *a*, 2, 3, 4, 6, *b*, *c*, *d*, *e*, *f*; German, 1, 2; Physics, 1, 2; Applied Mathematics, 1, 2, 3, 4, 5, 6; Engineering, 1, 2, 3*a*; Mechanical Engineering, 2, 3, 4, 5, 7, 8; thesis work.

It is estimated that students entering the University with that intention will be able to take the degree in one year after the baccalaureate degree. Students pursuing this course will be given the degree of Bachelor of Arts in Chemistry at the end of four years.

Laboratory Fees

A charge of twenty-five dollars per semester will be made to students in each laboratory course. Of this charge five dollars per semester in assaying, and ten dollars per semester in the other courses, is returnable, less bills for breakage and loss of apparatus.

GENERAL BOTANY

Professor DOUGLAS HOUGHTON CAMPBELL. Associate Professor GEORGE JAMES PEIRCE. Instructor ANSTRUTHER ABERCROMBIE LAWSON.

1. **Elementary Botany.**—Study of representatives of the principal groups of plants with lectures upon special morphology and classification. (Campbell's University Text-book of Botany.) The aim of this course is to give the student a grounding in the principles of plant structure and classification, derived from a careful study in the laboratory of selected types, supplemented by such explanatory lectures as may be deemed necessary.

3 hrs., both semesters (CAMPBELL, PEIRCE, LAWSON)

2. **Algæ.**—Lectures, reading, and laboratory work upon the special morphology and classification of the Algæ.

5 hrs., 1st semester (CAMPBELL)

3. **Archegoniata.**—Special morphology and classification of the Archegoniata. Continuation of course 2.

5 hrs., 2d semester (CAMPBELL)

4. **Physiology.**—Laboratory work, lectures, and reading on Respiration and Nutrition. [At least an elementary knowledge of Physics and Chemistry is a desirable preliminary to this course.]

3 hrs., 1st semester (PEIRCE)

5. Elementary Bacteriology.—Laboratory work, lectures, and reading. *3 hrs., 1st semester* (PEIRCE)

6. The General Physiology of Plants.—Lectures. Open to all except first-year students.

1 hr., 1st semester (PEIRCE)

7. The Evolution of Plant Forms.—Lectures. Open to all except first-year students.

1 hr., 2d semester (CAMPBELL)

8. Physiological Anatomy.—Laboratory work and lectures on the physiology of the tissues, especially of vascular plants.

3 hrs., 2d semester (PEIRCE)

[Course 8 is desirable, but is not required as a preliminary to course 4 (see above).]

9. Physiology.—Laboratory work, lectures, and reading on Growth, Irritability, and Reproduction. [At least an elementary knowledge of Physics and Chemistry is a desirable preliminary to this course.]

3 hrs., 2d semester (PEIRCE)

10. Histology.—Lectures and laboratory work on the structure and development of the sporophyte tissues. Microtechnique.

3 hrs., 1st semester (LAWSON)

11. Cytology.—Lectures and laboratory work on the cell and cell organs.

3 hrs., 2d semester (LAWSON)

12. Advanced Work in Morphology and Physiology.—Intended especially for graduate students.

(CAMPBELL, PEIRCE)

Course 1 must precede all other courses, except courses 6 and 7. Students making the subject a major must complete thirty-five hours including courses 1 to 4, course 2 or course 3 in Systematic Botany, and also course 1 in Zoology, before graduation. Course 12 is intended especially for graduate students, and opportunities will be given such students for carrying on special lines of work upon original problems.

Laboratory Fees

Ten dollars for course 5; five dollars for courses 4 and 9; three dollars per semester for each of the other laboratory courses.

SYSTEMATIC BOTANY

Professor WILLIAM RUSSELL DUDLEY. Instructor LE ROY ABRAMS. Herbarium Assistant PEHR HJALMAR OLSSON-SEFFER.

Instruction in this Department chiefly relates to the Spermaphytes, their structure, affinities, and geographic distribution. The advanced work on the Fungi will also be given under its direction.

Course 1, or its equivalent, and the Algæ and Archegoniata in General Botany, course 1 in Zoology, course 1 in Entomology, and course 1 in Geology are required of students intending to graduate with Systematic Botany as a major study. Course 1 is also required as a basis for courses 2, 4, and 6. An elementary knowledge of the structure of the flowering plants only is required to enter courses 3 and 5. Students are strongly advised to take Physiological Anatomy and one course in Physiology by Professor PEIRCE.

[1. **Elementary Botany.**—A study of plant types, etc. This is course 1 under General Botany.]

2. **Fungi.**—The laboratory work (three hours) will be devoted to morphology, development, and culture methods; the lectures to systematic relationships, with an account of economically important forms.

5 hrs., 1st semester

(DUDLEY, ABRAMS)

3. **Spermaphyta.**—The morphology, histology, and affinities of the principal orders of flowering plants represented on the Pacific Slope will be studied, and an acquaintance made with typical forms through dissection and drawing.

4 hrs., 2d semester

(DUDLEY, ABRAMS)

[4. **The Algæ and Archegoniata.**—Courses 2 and 3 under General Botany.]

5. **Geographical Distribution and Forest Botany.**—Lectures on the orders containing trees and shrubs and on the general principles of geographical distribution which they illustrate. Laboratory work, also preparation of herbarium specimens of woody plants, native and exotic.

3 hrs., 2d semester

(DUDLEY, ABRAMS)

6. **The Compositæ.**—A study of representatives of the

tribes of Compositæ, with reference to the general principles of classification.

2 or more hrs., 1st semester

(DUDLEY, ABRAMS)

7. Advanced Work.—Advanced or special study, chiefly for seniors in the Department. It is planned to meet the needs of each individual, and to promote habits of independent work.

3 or more hrs., each semester

(DUDLEY)

8. Graduate Work.—This includes investigation on a special subject in the Spermaphyta or Fungi, which may be either a systematic or a biological study. It is supplemented by reading, and a study of methods in bibliography.

Several carefully planned excursions in the second semester, through the zones of trees and chaparral in the adjacent mountains, are made the subjects of written reports by the students.

The Department has begun a series of observations and records designed to correlate the facts of plant distribution with those of the extraordinary variation in temperature, rainfall, and soil in the Santa Cruz mountain peninsula. The almost complete isolation of this tract by water and broad treeless valleys, and its range of elevation from sea level to 3800 feet (Loma Prieta), give additional value to it as a region for ecological studies relative to the development and preservation of the remarkable Coast Range flora.

The Herbarium consists of about 16,000 mounted sheets, largely of plants collected in Western America, and includes, besides purchases, considerable donations from the National Herbarium, the California Academy of Sciences, J. W. Congdon of Mariposa, and others. Gifts of herbarium specimens of trees and shrubs are especially desired, and will be named for collectors. The considerable private collections of flowering plants and fungi belonging to the head of the Department are in constant use.

Laboratory Fees

Laboratory fees for courses 5 and 6, two dollars; for the other courses, three dollars.

PHYSIOLOGY AND HISTOLOGY

Professor OLIVER PEEBLES JENKINS. Associate Professor FRANK MACE MACFARLAND. Assistant Professors RAY LYMAN WILBUR,* JAMES ROLLIN SLONAKER. Instructor CLARA S. STOLTENBERG. Assistants JOHN FRANCIS COWAN, MARY ISABEL MCCrackEN, MICHITARO SINDO. Research Assistant, Carnegie Institution, ANTON JULIUS CARLSON.

UNDERGRADUATE COURSES

1. General Anatomy and Physiology.—This course is designed to give a general view of the laws of the structure and the activity of organisms. The work will give occasion to discuss many questions of General Biology. It consists of: first, the study of the cell and its activities as shown in the unicellular organisms, in reproductive cells, and in individual cells of many tissues; second, the study of the laws and course of development resulting in higher differentiations in structure, and specializations in function, exhibited in a selected series of organisms, both animals and plants, of increasing complexity; third, the comparative study of the physiological processes of forms placed under widely different conditions. The latter part of the course is occupied with an introduction to the embryology, anatomy, and physiology of vertebrates. (One lecture and five laboratory hours a week.)
3 hrs., both semesters

(JENKINS, SLONAKER, COWAN, MCCrackEN)

2. Physiology of Muscle, Blood, and Circulation.—To be preceded by course 1. An experimental course covering the ground represented in Foster's Physiology, Part I, or the American Text-book on the same subjects. (One lecture and five laboratory hours per week.)

3 hrs., 1st semester (SLONAKER, COWAN)

3. Physiology of Digestion, Respiration, Elimination of Wastes, Metabolism, and Nutrition.—Planned to follow course 2. An experimental course, with Foster's Physiology, Part II, and the American Text-book, as texts. (One lecture and five laboratory hours per week.)

3 hrs., 2d semester (SLONAKER, COWAN)

* Absent on leave, 1903-04.

4. Structure of the Nervous System.—The course consists of the dissection and comparative study of a series of vertebrate brains, including the human brain and cord, also the peripheral nervous system; abundant material is provided, also such necessary helps as the latest models and charts. For texts the student will use Quain, Edinger, and Barker. (One lecture and five laboratory hours per week.)

3 hrs., 1st semester (STOLTENBERG)

4b. Structure of the Nervous System.—Advanced course. Open to those who have taken courses 4 and 5.

2 hrs., 2d semester (STOLTENBERG)

5. Histology of the Nervous System and Sense Organs.—The course includes also the anatomy of the sense organs. It is planned to accompany course 4, the two being designed to give the gross and minute anatomy of the central and peripheral nervous system and sense organs. The texts necessary for the student's use are Quain and Barker. (One lecture and five laboratory hours per week.)

3 hrs., 1st semester (STOLTENBERG)

6. Physiology of the Nervous System and Sense Organs.—An experimental course in these subjects, designed to follow courses 4 and 5. Texts: Foster, American Text-book. (One lecture and five laboratory hours per week.)

3 hrs., 2d semester (JENKINS, COWAN)

7. The Vertebrate Eye.—A comparative study of the structure and physiology of the eyes of vertebrates, giving special attention to the retina. Open to advanced students. (Lecture and laboratory work, six hours per week.)

2 hrs., 2d semester (SLONAKER)

8. Special Courses in Physiology.—Advanced courses open only to those who have had courses 1, 2, 3, 4, 5, and 6. They are arranged for the advanced study of selected subjects in physiology, or as a drill in the methods of research. The work will be planned for the individual student, the time varying with the exigencies of the case.

2 to 5 hrs., both semesters (JENKINS)

9. Histology.—This course includes both the study of the tissues in a comparative way, and the history of their development; also the minute anatomy of organs, except those

of the nervous system and senses. [See courses 4 and 5.] It also gives a drill in histological technique. Open to those who have taken course 1, or its equivalent. Students with Physiology as their major are advised to take courses 2, 3, and 9 together. (One lecture and six laboratory hours a week.)
3 hrs., both semesters (McFARLAND)

10. Histogenesis.—A course in advanced Histology for students who have completed courses 1 and 9, and in addition the first semester of Vertebrate Embryology (Zoology 7). It comprises the comparative study of the histogenesis of the fundamental vertebrate tissues and organs. (One lecture per week, minimum laboratory work six hours per week.)
3 hrs., 1st semester (McFARLAND)

11. Neurocytology.—A comparative study of the minute structure of the nerve cell and nerve fibre, the neurone theory, and the question of functional alterations of structure during normal activity and artificial stimulation. (One lecture and at least six laboratory hours per week.) Open to advanced students.
3 to 5 hrs., 2d semester (McFARLAND)

12. Cellular Biology.—A course in Cytology dealing with the structure and functions of the cell, with special reference to the reproductive processes in unicellular and multicellular organisms, and the theories connected therewith. Open to advanced students. (Two lectures per week, with demonstrations and laboratory work.)
3 to 5 hrs., 2d semester (McFARLAND)

13. Anatomy.—This course consists of twelve weeks' study of human osteology, with a brief comparative study of skeletons of vertebrates. The remaining six weeks is given to mammalian myology, angeology, and splanchnology (dog, cat, rabbit). [For anatomy of nervous system and sense organs, see courses 4 and 5.]
3 to 5 hrs., 2d semester (COWAN)

14. Special Courses in Histology.—Advanced courses in Histology will be arranged for individual students, with a view to giving drill in methods of research. Open only to those who have had courses 1, 5, and 9.
2 to 5 hrs., both semesters (McFARLAND)

15. Journal Club.—Students in the advanced classes will be expected to meet once a week to discuss current literature in Physiology and Histology.

1 hr., both semesters

16. Seminary in Physiology and Histology.—Open to graduate students. *2 hrs., both semesters*

17. Research in Physiology or Histology.

Hours to be determined, both semesters

(JENKINS, MCFARLAND, SLONAKER)

Candidates for the Bachelor's degree who select Physiology and Histology as a major, will be expected to take courses 1, 2, 3, 4, 5, 6, 9, and 15, and at least five hours to be made up from the other courses offered; and in addition courses 1 and *a* in Chemistry, 1 and 2 in Physics, and the first semester in Embryology (course 7 in Zoology).

Laboratory unit of credit.—In those courses in which definite laboratory time is not fixed, three hours of laboratory work are taken as the equivalent of one hour's credit.

Laboratory Fees

Seven dollars per semester, except for course 1, in which the fee is five dollars per semester.

GRADUATE COURSES

The graduate work of the Department is included in the courses numbered 4*b*, 7, 8, 10, 11, 12, 14, 15, 16, and 17. Undergraduate students may elect such of these courses as they are prepared to take, but credit recorded in undergraduate standing will not count toward a higher degree. The details of the work of a graduate student will be planned for each individual, and will naturally depend on the aim sought by him and upon his previous training. Candidates for the higher degrees will be expected to include in their work attendance on the Journal Club and Seminary, the selection of certain of the courses given above, and the accomplishment of some research. When it is desired to select a minor subject the choice of such minor will be guided by the needs of the candidate. The work leading to these de-

grees is of such a nature as to require a reading knowledge of German and French for its accomplishment.

PREPARATION FOR THE STUDY OF MEDICINE

Students intending to enter on the study of medicine, are advised to take Physiology and Histology as a major subject, with Chemistry, Physics, Comparative Anatomy of the Vertebrates, and Hygiene among the collateral subjects. Such a course gives that foundation both in scientific knowledge and in skill in experimental Physiology, and in Histological and Anatomical technique, which will make it possible to accomplish the medical course of the best medical schools in a shorter time and with greater advantage.

HYGIENE

Associate Professor WILLIAM FREEMAN SNOW. Assistant Professor THOMAS ANDREW STOREY. Instructor HALBERT WILLIAM CHAPPEL. Assistants STELLA ROSE, VERA TOWNSEND, ROYCE REED LONG. Gymnasium Assistants CHLOE CASE ANDERSON, MARRION AUGUSTA HERR, FRANCES REBEKAH GARDNER.

The courses of the department are arranged under two general sections—Hygiene and Physical Training.

I. HYGIENE

1. General Hygiene.—Lectures on Sanitary Science and Public Health. Open to students who have had course 1 in Physiology or its equivalent.

2 hrs., 1st semester (SNOW)

NOTE.—The first six lectures of course 1 will be devoted to the sanitary conditions of the community in relation to the health of students, and will be open without credit to all students interested.

2. School Hygiene.—A laboratory course open in connection with course 1 to a limited number of students who have had training in elementary Physics and Chemistry. The instructor should be consulted before registering for the course.

2 to 3 hrs., 1st semester (SNOW)

3. Public Health.—Lectures and laboratory work on methods of inspection and examination employed by officers of the public health service. This work will include inspection of the various branches of the San Francisco Health Department and of the Federal Quarantine Station at Angel Island. An investigation of the sanitary history of one of the great epidemics will be taken up each year. Open to students who have completed courses 2, 3, 4, 9, and 13 in Physiology and course 1 in Hygiene. [Course 3 will be given in 1904-05.]

2 to 5 hrs., 2d semester, in alternate years. (SNOW)

II. PHYSICAL TRAINING

4. Physical Training.—Systematic exercise in the gymnasium and its open-air divisions. The work is largely individual and adapted to the requirements indicated upon physical examination. Students may repeat their registration for this course at the beginning of each semester, and will be assigned to such divisions of the work as their ability warrants.

1 hr., both semesters

(STOREY, CHAPPEL, ROSE, TOWNSEND, LONG, ANDERSON, HERR, GARDNER)

5. Special Gymnastic Training.—

a. Open to students who desire special training in gymnasium methods and who are physically qualified to do general apparatus work.

b. A more advanced course consisting of individual work which may necessitate several semesters for completion.

1 hr., each semester (CHAPPEL, TOWNSEND)

6. Special Courses in Physical Education.—Open to students who have had courses 2, 3, 4, 5, 6, and 13 in Physiology and courses 4 and 5 in Hygiene. Advanced work in physical examination and problems of gymnasium organization, management, and technique planned for students intending to make physical education their profession. *Hours to be arranged* (STOREY)

No students are accepted in the department as candidates for a degree, but the increasing demand for university-trained instructors in physical education makes it desirable that some recognition be given those students who are competent to direct physical training work. A departmental recommendation will be given to students of exceptional ability who have completed courses 1, 4, 5,

and 6 in Hygiene, courses 1, 2, 3, 4, 5, 6, 9, and 13 in Physiology, and courses 1 and 2 in Physics.

The Physical Training courses are carried on in Encina Gymnasium for men, and in Roble Gymnasium for women. Athletic facilities are afforded in connection with each gymnasium.

Laboratory Fees

Roble Gymnasium, one dollar per semester; Encina Gymnasium, and courses 2, 3, and 6, two dollars each per semester.

ZOOLOGY

Professor CHARLES HENRY GILBERT. Associate Professors GEORGE CLINTON PRICE, HAROLD HEATH. Assistant Professor JOHN OTTERBEIN SNYDER. Curator EDWIN CHAPIN STARKS.

1. Elementary Zoology.—A laboratory course involving the study of representatives of the principal groups of animals, together with lectures on their structure and classification, and on the general laws of biology which they illustrate.

3 hrs., both semesters (PRICE)

2. The Invertebrates.—This course, following the first year's work, is designed to give the student a broader knowledge of the morphology and relationships of the more important invertebrate groups.

3 hrs., both semesters (HEATH)

3. Invertebrate Embryology.—A study of segmentation, the formation of the germ layers, and certain phases of the later development, including the significance of larval forms and the relationships of the principal phyla. Must be preceded by course 2. *2 hrs., both semesters* (HEATH)

4. Advanced Work on Invertebrates.—The original investigation of problems connected with the anatomy, embryology, or classification of invertebrates.

2 to 5 hrs., both semesters (HEATH)

5. The Vertebrates.—A general course in the classification of vertebrate animals, with studies in the habits and the geographical distribution of species. The course will include field excursions and a study of the methods of collecting and preserving specimens. *2 hrs., both semesters* (SNYDER)

6. Comparative Anatomy of the Vertebrates.—A more detailed examination of vertebrate morphology, including dissection of representatives of the several classes of vertebrates, with comparative studies in vertebrate osteology, the nervous and circulatory systems, etc.

3 hrs., both semesters (GILBERT, SNYDER)

7. Vertebrate Embryology.—During the first semester, the development of the chick; for the second semester, the shark, salamander, and mammal.

2 hrs., both semesters (PRICE)

8. Advanced Vertebrate Embryology.—The work during the first semester will consist of a detailed study of the development of the nervous system, the urinogenital, or some other important system of organs. During the second semester, each student will be given some special problem, usually in the line of the verification of some piece of original work.

2 hrs., both semesters (PRICE)

9. Ichthyology.—A course of lectures and laboratory work, including an examination of the larger groups of fishes, with special reference to the characters on which they are based, and including practical work in the discrimination of species.

2 hrs., both semesters (GILBERT, STARKS)

10. Advanced Ichthyology.—Special problems in the morphology and classification of fishes will be set for advanced students prepared for such work.

2 to 5 hrs., both semesters (GILBERT)

11. Journal Club.—Open to seniors and graduate students.

2 hrs., both semesters (GILBERT)

Major students must before graduation complete courses 1, 2, 6, 9, 11, the first semester of courses 3 and 7, one advanced course in Zoology, and course 1 in Botany.

Work for graduate and special students will be laid out in accordance with their individual needs and preferences.

THE ZOOLOGICAL COLLECTIONS

The *Zoological Museum* contains a very full representation of the fishes of North America, and includes among others a valuable series of the deep-water fishes of the Pacific, and large collections from the West Indies, the Hawaiian Islands,

Bering Sea, Japan, the coasts of Mexico and Central America, and the Galapagos Islands. The museum contains also a large representation of the reptiles, batrachians, birds, and mammals of California and adjoining States. The development of the museum has been due very largely to the co-operation of Mr. TIMOTHY HOPKINS.

Material illustrating the principal groups of invertebrates is ample for class instruction.

Laboratory Fees

All laboratory courses, three dollars each per semester.

ENTOMOLOGY AND BIONOMICS

ENTOMOLOGY

Professor VERNON LYMAN KELLOGG. Instructor ROBERT EVANS SNOGRASS. Assistant MARY ISABEL MCCracken.

1. Elementary Entomology.—The elementary study of insect structure, metamorphosis, habits and classification, including practice in collecting and preserving specimens.

3 hrs., either semester (SNOGRASS)

2. Morphology and Development of Insects.—Continuation of the preceding course, including the study of the comparative morphology of adult and larval forms, and of insect life-history.

3 hrs., either semester

(KELLOGG, SNOGRASS)

3. Insect Ecology and Economic Entomology.—The ecologic relations of insects, with special attention to the scale insects (Coccidæ) and others of economic importance in California. Must be preceded by courses 1 and 2. [Not given in 1904-05.]

2 or 3 hrs., both semesters

(KELLOGG)

4. General Entomology.—A course of lectures and demonstrations. Open to students who have had a laboratory course in Biology (Zoology, Botany, or Physiology). [Not given in 1904-05.]

2 hrs., 2d semester

(KELLOGG)

5. Advanced Work.—Advanced study and investigation of the biology of insects. Laboratory and field work.

2 to 5 hrs., both semesters (KELLOGG, SNODGRASS)

Work for graduate and special students will be specially arranged.

Major students in Entomology must obtain before graduation twenty-four hours' credit in Entomology, and credit for course 1 in Zoology, course 1 in General Botany, and course 3 in Systematic Botany, making forty hours in biological subjects. Course 1 in Zoology, or its equivalent, should precede any course in Entomology.

The *Entomological Collections* contain authoritatively determined specimens, accessible for comparison, in all of the insect orders, and include many sets of specimens illustrating the development and habits of insects. There is included, also, the most important existing collection of North American Mallophaga, comprising the types of four-fifths of all the species so far described from North America and the Pacific Islands, an unusually large collection of Coccidæ (scale insects), and a valuable series of specimens from the Galapagos Islands.

Laboratory Fees

Three dollars per semester for each laboratory course.

BIONOMICS

Instructor RUBY GREEN BELL.* Lecturers DAVID STARR JORDAN, VERNON LYMAN KELLOGG.

1. Organic Evolution.—Lectures on the laws or principles of biology and the factors in organic evolution. Not open to first-year students.

2 hrs., both semesters (JORDAN, KELLOGG)

2. Variation and Heredity.—Statistical and experimental work in the laboratory and vivarium. Open only to prepared students.

3 to 5 hrs., both semesters (KELLOGG, BELL)

* Beginning August, 1904.

GEOLOGY AND MINING

Professors JOHN CASPER BRANNER, JAMES PERRIN SMITH. Associate Professor JOHN FLESHER NEWSOM. Instructor DORSEY ALFRED LYON. Assistants WARREN DU PRÉ SMITH, DAVID MORRILL FOLSOM.

Students intending to make Geology and Mining their major subject should offer, as a part of their entrance preparation, solid geometry, trigonometry, advanced algebra,* chemistry, zoology, and French or German, or both; otherwise the mathematics and chemistry must be taken in the University.

The following is a summary of the courses that lead to the degree of Bachelor of Arts in Geology and Mining:

FIRST YEAR

Applied Mathematics 4 (5 hrs.); Chemistry 1, *a* (8 hrs.); Engineering 1*a*, 1*b* (6 hrs.); Physics 1, 2 (6 hrs.). Total 25 hrs.

SECOND YEAR

Applied Mathematics 5, 6 (16 hrs.); Chemistry 6, *b*, *d* (7 hrs.); Civil Engineering 4*b* (2 hrs.); Electrical Engineering 1, (4 hrs.); Mechanical Engineering 2 (2 hrs.); Geology and Mining 5*a*, *b* (4 hrs.). Total 35 hrs.

THIRD YEAR

Engineering 2, 3*a* (8 hrs.); Mechanical Engineering 4 or 5, 7, 8 (9 hrs.); Geology and Mining 1, 2, 3†, 4†, 9, 11*a*, 11*b* (14 hrs.); Chemistry *e* (3 hrs.). Total 34 hrs.

FOURTH YEAR

Geology and Mining 6, 7*a* or 7*b*, 10*a*, 10*b* (18 hrs.); Civil Engineering 8*c* (3 hrs.); Mechanical Engineering 9 (2 hrs.); Engineering 3*b* (3 hrs.). Total 26 hrs.

1. Dynamic and Structural Geology.—Lectures, with syllabus. 3 hrs., 1st semester (BRANNER)

* Students presenting trigonometry and advanced algebra as entrance subjects are required to pass a satisfactory special examination in those subjects, otherwise courses one and three in applied mathematics must be taken during the first year in the University.

† Geology and Mining 3 and 4 (Topographic and Field Geology) must be taken during the summer vacation.

- 1a. Physiography.**—Lectures, with syllabus.
1 hr., 2d semester (BRANNER)
- 2. Economic Geology.**—Lectures, with syllabus. Open to students who have completed course 1.
2 hrs., 2d semester (NEWSOM)
- 3. Topographic Geology.**—Field and laboratory work, with the construction of geologic maps, models, and sections. Open to students who have completed course 1 in Geology, and course 4b in Civil Engineering.
4 hrs., summer vacation (NEWSOM)
- 4. Field Geology.**—Field practice in working out geology in the field and its representation upon topographic maps and sections. Prerequisites: Geology 1 and Civil Engineering 4b.
1 to 5 hrs., summer vacation
(BRANNER, NEWSOM)
- 5. Mineralogy.**—*a.* Elementary Crystallography, Mineralogy, and Petrography (first semester). *b.* Blowpipe Analysis (second semester). Open to students who have had elementary chemistry.
2 hrs., both semesters
(J. P. SMITH, W. D. SMITH)
- 6. Advanced Mineralogy and Petrography.**—*a.* Mathematical, Physical, and Chemical Crystallography (first semester). *b.* Descriptive Mineralogy and Petrography, with special studies of the rock-forming minerals (second semester). Open to advanced students and graduates.
3 to 4 hrs., 1st semester; 4 hrs., 2d semester
(J. P. SMITH)
- 7. Paleontology.**—*a.* Systematic Paleontology, or the history and character of organisms (first semester). *b.* Historical Geology, or the history and character of geologic formations (second semester). Open to students who have completed course 1.
2 to 4 hrs., 1st semester; 4 hrs., 2d semester
(J. P. SMITH)
- 8. Paleontology.**—Original investigations of various problems in paleontology, especially of invertebrate morphology, and of the distribution of faunas. This course will consist

entirely of private work, in field and laboratory. Open to advanced students and graduates.

2 to 5 hrs., both semesters (J. P. SMITH)

[9. Assaying.]—Open to students who have completed course *d* in Chemistry and courses 1 and 2 in Geology. This course is the same as course *n* in the Department of Chemistry.] *3 afternoons, either semester* (LENOX, DODD)

10. Mining.—*a.* Lectures on mining operations and methods, including prospecting, development, methods of working, timbering, shaft sinking, and hoisting.

4 hrs., 1st semester (NEWSOM)

b. Continuation of *a*, including drainage, ventilation, and ore-dressing. *3 hrs., 2d semester* (NEWSOM, FOLSOM)

11a. General Metallurgy.—A study of the chemical and physical principles upon which the art of metallurgy is based, and of the materials used in metallurgical operations, such as fuels, refractory materials, etc.; and of the products resulting from these operations. An introduction to course 11b. Two lectures a week, and one afternoon of laboratory work throughout the semester. The chlorination and cyanide processes for treating gold ores, will be taken up in the lectures during November and December. Open to students who have completed Chemistry 1 and *a*.

3 hrs., 1st semester (LYON)

11b. Metallurgy of Silver, and of the Principal Base Metals, exclusive of Iron.—Two lectures a week and one afternoon of laboratory work. Open to students who have completed course 11a. *3 hrs., 2d semester* (LYON)

11c. Metallurgy of Iron, Steel, and the Alloys.—A study of their manufacture and physical properties with reference to their selection as constructive materials. Two lectures a week, and one afternoon of laboratory work. Students taking this course are expected to have a knowledge of Elementary Chemistry. *3 hrs., either semester* (LYON)

11d. Metallography and Physics of the Metals.—Recitations, reading, and laboratory work. Howe's "Iron, Steel, and Other Alloys" will be used as a text. The laboratory work will include a study of the microstructure of the industrial metals and alloys, and of the influence of chemical com-

position, thermal and mechanical treatment, upon their structure. Also the relation of the structure of metals and alloys to their physical properties. Open only to students who have completed Chemistry 2, *d*, and *j*.

3 to 5 hrs., either semester (LYON)

11e. Metallurgical Laboratory.—Considerable option will be allowed in the work of this course. A student may either take up some problem or problems in connection with the extraction of metals from their ores, such as the facilities of the laboratory will permit, or he may take up advanced work in the physics of metals, metallography, etc. Students wishing to take up work in connection with the extraction of metals from their ores must have completed Chemistry *d* and *e*, or their equivalent. Those wishing to take up advanced work in the physics of the metals, metallography, etc., must have completed Chemistry *d* and *j*, or their equivalent.

3 to 5 hrs., either semester (LYON)

12. Mineralogy.—Original Investigations in Mineralogy and Petrography. This course consists entirely of private work in field and laboratory. Open only to advanced students and graduates.

2 to 5 hrs., both semesters (J. P. SMITH)

13. Paleontology.—Lectures on special topics. Open to advanced students and graduates.

1 hr., 1st semester (J. P. SMITH)

14. Special Courses.—Special courses of instruction and training are laid out for advanced and special students according to the needs and qualifications of each individual. Special investigations are taken up by advanced students as rapidly as it is possible for them to undertake such work advantageously.

1 to 5 hrs., both semesters (BRANNER, NEWSOM)

[Courses in mine surveying, the designing of mining machinery and mine structures, and in mineral analysis are also given; see Departments of Civil Engineering, Mechanical Engineering, and Chemistry.]

Laboratory Fees

Five dollars for the second semester in course 5; ten dollars each in courses 11a, 11b, 11c; ten to twenty dollars each in courses 11d and 11e, according to the number of hours taken.

ENGINEERING

A. ENTRANCE SUBJECTS

Students intending to take their major in one of the Engineering Departments are advised, though not required, to present, among their entrance subjects, advanced algebra,* solid geometry, trigonometry,* physics, drawing, and German or French. Special students should have completed entrance English, elementary algebra, and plane geometry. (See pp. 35-56.)

B. GENERAL COURSES

I. Applied Mathematics

First-Year Courses:

Algebra; Solid Geometry; Trigonometry; Co-ordinate Geometry.

Second-Year Courses:

Calculus; Theoretical Mechanics.

[See announcement of Department of Applied Mathematics, p. 121.]

II. General Technical Courses

1a. Linear Drawing and Lettering.—(Drafting two afternoons a week, September and October.) Open to all students, and required of students in Engineering. The instruments and materials for this course cost from twenty to thirty dollars.

1 hr., either semester

(BRUA, CUNNING, FISH)

1b. Descriptive Geometry.—Including applications to shades, shadows, and perspective. (Two afternoons of drafting each week, November and December. Two lectures and

* Courses 1 and 3 in Applied Mathematics are required of all first-year students in Engineering, except such as have credit in the corresponding entrance subjects and also pass special examinations (see announcement of the Department of Applied Mathematics, p. 121).

two afternoons of drafting each week, January to May.) This course is open to students who have completed or are taking solid geometry and Engineering 1a, and is required of students in Engineering.

1 hr., 1st semester; 4 hrs., 2d semester

(BRUA, CUNNING, FISH)

2. Applied Mechanics.

a. Mechanics of Materials.—Under this head are treated the theory of the strength and elastic properties of the ordinary materials of engineering construction. The main subjects covered are simple tension, compression, and shear; theory of flexure, with applications to simple and continuous beams; theory of long columns; torsion; repeated stress; sudden stress and resilience. (Lectures and recitations three hours a week.)

b. Testing of Materials.—Each student is required to make a series of experiments, testing the strength and elastic properties of wrought iron, cast iron, steel, and wood. A careful record of all experiments is required of every student. (Laboratory work, six hours a week.)

Open to students who have completed the first and second year courses for Engineering students in Applied Mathematics; required of all students having Engineering as a major subject.

5 hrs., 1st semester

(WING)

3. Hydraulics.

a. Hydrostatics and Hydraulics.—This course treats of fluid pressure, the principles of fluid equilibrium, and the laws governing the flow of water through orifices, over weirs, in closed conduits, and in open channels. Open to students who have completed courses 5 and 6 in Applied Mathematics.

3 hrs., 2d semester

(HOSKINS)

b. Hydraulic Motors.—A discussion of the theory of the main types of turbines, including centrifugal pumps. A few lectures on the general theory of energy and on relative motion are given as an introduction to the course. Open to students who have completed course 3a.

3 hrs., 1st semester

(HOSKINS)

I. CIVIL ENGINEERING

Professors CHARLES DAVID MARX, CHARLES BENJAMIN WING, LEANDER MILLER HOSKINS. Associate Professor JOHN CHARLES LOUNSBURY FISH. Assistants ELMER GEORGE BRUA, JOHN FLETCHER BYXBEE, JR., FRANK AMBROSE CUNNING, HUBERT HARRY HALL, THOMAS BENTON HUNTER, JR.

A. Topographic Engineering

4a. Elementary Surveying.—Instruments; systems of coordinates; methods of surveying; latitude and azimuth; errors of observation; surveys; computing and mapping. (Recitations two hours, drafting and field work nine hours, each week.) Open to students who have completed Engineering 1a and Applied Mathematics, 1, 2, 3, and 4. Required of students in Civil Engineering.

5 hrs., 1st semester (BYXBEE, FISH, HALL, HUNTER)

4b. Elementary Surveying.—Course 4a abridged for students in Mechanical, Electrical, and Mining Engineering. (Field work, reading, and drafting, six hours each week.)

2 hrs., either semester (BYXBEE, HUNTER)

B. Railroad Engineering

6a. Railroad Surveying.—Including the transition curve and earthwork. (Recitations two hours, drafting and field work nine hours each week.) Open to students who have completed 4a. Required of students in Civil Engineering.

5 hrs., 2d semester (FISH, HALL, HUNTER)

6b. Railroad Location.—(One recitation a week.) Open to students who have completed 6a.

2 hrs., 1st semester (FISH)

6c. Railroad Construction.—(Drafting-room, two afternoons a week.) Open to students who have completed 6a, and have taken or are taking 8b.

2 hrs., 2d semester (FISH)

C. Structural Engineering

8a. Elements of Design.

1. Materials.—[See course 11c, Geology and Mining.]

2. Mechanics of Structures.—Course 6 in Applied Mathematics is extended to the determination of stresses in simple trusses, both graphically and analytically. (Drafting-room, nine hours a week first half of semester.)

3. Theory of Structural Details.—Course 2 is extended to an investigation of the distribution of stresses in structural details. (Drafting nine hours a week last half of semester.)

Open to students who have completed course 1 in Engineering, and who have taken or are taking course 2 in Engineering, and also course 11c in Geology and Mining. Required of all students having Civil Engineering as a major subject.

3 hrs., 1st semester

(WING)

8b. Elements of Design.

1. Materials.—Structural materials, other than metals, are studied from an engineering standpoint. Wood, stone, brick, limes, cements, etc., are considered in order. (Lectures two hours a week first half of semester.)

2. Foundations.—Under this head are considered the bearing power of soils, strength of piles, distribution of pressures, and similar details connected with the design of simple foundations. (Lectures two hours a week last half of semester.)

3. Design.—Complete designs are made, including working drawings, bills of material, and estimates of cost, of simple structures, such as a mill building and a highway bridge. (Drafting-room, nine hours a week first half of semester; six hours a week last half of semester.)

4. Testing.—Extending the work of course 2b. Each student is required to make a series of experiments, testing the physical properties of brick, stone, and cement. (Laboratory, three hours a week last half of semester.)

Open to students who have completed course 8a in Civil Engineering; required of all students having Civil Engineering as a major subject.

5 hrs., 2d semester

(WING)

8c. Elements of Design.—Courses 8a and 8b abridged to meet the requirements of students having Mining, Mechanical, or Electrical Engineering as a major subject. Special applications are made to hoisting and conveying structures, mill buildings, and central station buildings. (Hours to be arranged by consultation.)

Open to students who have completed courses 1 and 2 in Engineering, and course 11c in Geology and Mining.

3 hrs., either or both semesters (WING)

9. Railway Bridges.—This course comprises the determination of the stresses in modern types of railroad bridges, including cantilever and swing spans, masonry arches, and arch ribs; the discussion of the most economical types, spans, and dimensions of bridges and bridge members; the study of the methods of constructing sub-aqueous foundations, shop methods, erection, inspection of material, specifications, and other factors influencing the design of bridges. Designs of sub- and super-structure are made by each student to fulfill actual conditions, the parts proportioned, and bills of material prepared. Open to students who have completed course 8. (Lectures two hours per week, drafting nine hours.)

5 hrs., both semesters (WING)

D. Hydraulic Engineering

12. Water-Supply Engineering for Towns and Districts.—Sources of supply. Collecting and storing of water, either for water supply of towns or for irrigation purposes. Settling, filtering, conducting, and delivering of water, including the study and design of all accessory works. (Three hours lectures and recitations, six hours drafting.) Open to students who have completed courses 2 and 3 in Engineering and 4a and 8a in Civil Engineering; required of all students who take their major in Hydraulic Engineering.

5 hrs., 1st semester (MARX)

13. Sanitary Engineering.—Including sewerage of towns and drainage of lands. Special attention will be given to the study of all municipal sanitary problems, such as removal of sewage, destruction of garbage, construction, maintenance, sweeping, and repairs of streets and pavements. (Three hours lectures and recitations, six hours drafting.) Open to students who have completed courses 2 and 3 in Engineering and 4a, 8a, and 12 in Civil Engineering; required of all students who take their major in Hydraulic Engineering.

5 hrs., 2d semester (MARX)

15. Construction of Canals, River and Harbor Improvements.—Lectures and designing as per arrangement. Open to

students who have completed courses *2a*, *2b*, and *3* in Engineering, and *4a* and *8a* in Civil Engineering.

2 hrs., both semesters (MARX)

16. Technical Seminary.—Study of German and French technical journals. Open only to fourth-year students in Civil Engineering.

2 hrs., both semesters (MARX)

II. MECHANICAL ENGINEERING

Professor ALBERT WILLIAM SMITH. Associate Professor GUIDO HUGO MARX. Assistant Professors ANDREW ALLEN BROWNE, WILLIAM RANKINE ECKART. Instructors JULIUS EMBRET PETERSON, EDWARD JOHN STANLEY, JAMES BENNETT LIGGETT, LEWIS ANDREW DARLING. Assistant ROBERT HUGHES GAITHER.

The following courses in Mechanical Engineering are offered. In connection with these the student takes courses in mathematics, theoretical and applied mechanics, chemistry, physics, and drawing, and may also elect such work from the general courses as time and preparation permit.

1. Shop Work.

a. Woodworking.—(Three exercises a week, half year.)

b. Pattern-Making.—(Three exercises a week, half year.)

c. Forge Work.—(Three exercises a week, half year.)

d. Foundry Work.—(Three exercises a week, half year.)

e. Machine Shop Work.—(Three exercises a week, through the year.)

Open to all students, and required of students in Mechanical Engineering.

3 hrs., each semester

(BROWNE, PETERSON, STANLEY, LIGGETT)

2. Elementary Machine Drawing.—This work consists of practice in making freehand sketches of machine parts from which working drawings, tracings, and blueprints are developed. (Six hours a week in drafting-room.) Open to students who have completed course *1a* in Engineering.

2 hrs., either semester (GAITHER)

4. Elementary Machine Design.

a. Function of machines; motion, force, and work in machines. (Three hours a week, lectures and recitations, second semester.)

b. A drafting course applying the principles treated in *a.* (Six hours a week drafting, second semester.)

c. An abridged drafting course intended for major students in Geology and Mining. (Six hours a week drafting, beginning when the topic of motion in machines is reached in *a.*; one hour of credit.)

Open to students who have completed course 2 in Mechanical Engineering and course 1*b* in Engineering. Either *b* or *c* must be taken in connection with *a.* *a* and *b* are required of students in Mechanical Engineering.

4 or 5 hrs., 2d semester (G. H. MARX, DARLING)

5. Machine Design.—Study of machine details, such as fastenings (including riveted joints and boiler design); shafting and spindles; journals, boxes, and lubrication; ball and roller bearings; sliding surfaces; couplings and clutches; gear, belt, rope, and chain transmission systems; flywheels; springs; frames; and supports. (Two hours a week, recitations and lectures, six hours in the drafting-room, throughout the year.) Open to students who have completed course 4 in Mechanical Engineering, and who are taking course 2 in Engineering; required of students in Mechanical Engineering.

4 hrs., both semesters

(G. H. MARX, DARLING)

6. Advanced Machine Design.—A drafting-room course consisting of the design of complete machines. Intended for fourth-year students who have completed course 5.

2 hrs., both semesters (G. H. MARX)

7. Heat Engines.—Mechanical theory of heat and its applications. (Two lectures and six hours in the drafting-room a week.) Required of third-year students in Mechanical Engineering. *3 hrs., both semesters* (A. W. SMITH)

8. Experimental Engineering.—Mechanical laboratory. Testing of engines and boilers, and experimental investigation of correlated problems. Open to students who have completed course 7, and required of students in Mechanical Engineering. *2 hrs., both semesters* (ECKART)

9. Pumping Machinery.—A lecture course for fourth-year students. Open to students who have taken course 7, first semester. *2 hrs., 2d semester* (A. W. SMITH)

10. The Mechanical Engineering of Central Power Stations.

—A lecture course open to students who have completed course 7. *2 hrs., 1st semester* (A. W. SMITH)

11. Steam Engine Design.—A drafting-room course consisting of the design of different types of steam-engines. Intended for students who have completed course 7. Required of fourth-year students in Mechanical Engineering.

2 hrs., either semester (A. W. SMITH)

Shop and Laboratory Fees

Courses 1a and 1b, two dollars each; courses 1c, 1d, and 1e, four dollars each; course 8, two dollars per hour.

III. ELECTRICAL ENGINEERING

Professor ALBERT WILLIAM SMITH (in charge of administration). Associate Professor GEORGE HERBERT ROWE. Instructor KENNETH LIVERMORE CURTIS. Assistant FRANK OAKES ELLENWOOD.

During the four undergraduate years, leading to the degree of Bachelor of Arts, the student in Electrical Engineering pursues, in addition to the technical studies outlined below, the following courses: 1, 2, 3, 4, 5, and 6 in Applied Mathematics; 1, 2, 3, 4, 7, 8, and 10 in Mechanical Engineering; 1a, 1b, 2, and 3 in Engineering; 1 and a in Chemistry; 2, 6, and 7 in Physics. The student is at liberty to elect courses in other departments for which he may be prepared, and according to the time at his disposal.

1. Elementary Electrical Engineering.—This course is intended for students desiring a brief and very general course in electrical work. Three hours lecture and recitations, with three hours of laboratory work. Courses 1, 2, 3, 4, 5, and 6 in Applied Mathematics, and courses 2, 6, and 7 in Physics prerequisite. *4 hrs., 1st semester* (ROWE)

2a. Continuous Current Theory.—The study of the physical theory, actions and reactions in the armature, magnetic principles, and windings of continuous current dynamos and motors. (CURTIS)

2b. Alternating Current Theory.—The general elementary mathematical theory of alternating currents; the theory of

alternate current dynamos, motors, rotary and static transformers. Polyphase systems and dynamos. Graphic and analytic methods. Courses 1, 2, 3, 4, 5, and 6 in Applied Mathematics, and courses 2, 6, and 7 in Physics prerequisite.

3 hrs., both semesters (ROWE)

3. Continuous Current Measurements.—The calibration and use of ammeters, voltmeters, wattmeters, photometry of incandescent and arc lamps. Systematic tests on continuous current dynamos and motors. Laboratory and factory methods of testing. To be taken with course 2.

2 hrs., both semesters (CURTIS, ELLENWOOD)

4. Advanced Alternating Current Theory.—Discussion of the theory of alternating current dynamos, motors, transformers, polyphase systems, etc., by means of Steinmetz's method. Long distance line problems. Courses 2 and 3 prerequisite.

4 hrs., both semesters (ROWE)

5. Alternating Current Testing.—Systematic tests on alternators, synchronous motors, rotaries, transformers, and induction motors. Laboratory and factory methods of taking and recording results. High voltage testing of oils and insulators. To be taken with course 4.

2 hrs., both semesters (CURTIS)

6. Design of Electrical Machinery.—Lectures on factory methods of design of continuous and alternating current machinery. Discussion of the causes affecting regulation, output, etc., of the various types. (Lecture two hours per week, drafting, 3 hrs.) Course 2 prerequisite.

3 hrs., 2d semester (ROWE)

7. Electric Transmission.—Lectures on the design and management of station dynamos, switch-boards, transformers, the line, substations and distribution circuits for the long distance transmission of power. To be taken with courses 4 and 5.

2 hrs., 2d semester (ROWE)

8. Technical Seminary.—This course will consist in the discussion of recent technical literature; mainly the reading and discussion of American Institute papers before the local branch.

1 hr., both semesters (ROWE)

In connection with Course 8, it is aimed to have as many special lectures as possible. In connection with course 7, a series of tours is taken to San José, San Francisco, Oak-

land, etc., for the purpose of studying practical installations.

The Department acknowledges free copies of the following journals:

The Electrical World and Engineer, New York; *The Western Electrician*, Chicago; *The Journal of Electricity*, San Francisco; *The Street Railway Journal*, New York; *Electricity*, New York; *The Telephone Magazine*, Chicago.

Laboratory Fees

Four dollars per semester in courses 1 and 9, and five dollars in course 4.

IV. MINING ENGINEERING

[See announcements of Department of Geology and Mining, pp. 143-147.]

V. CHEMICAL ENGINEERING

[See announcements of the Department of Chemistry, pp. 125-129.]

MANUAL TRAINING

Foreman EUGENE SOULE.

The work in Manual Training will consist of lathe work, bench work, carving, varnishing and polishing, burnt work, etc. Fifty hours of actual shop practice will be required for one hour of credit. Shop fee, three dollars.

1 hr., each semester.

THE UNIVERSITY LIBRARY

MELVIN GILBERT DODGE, Associate Librarian. LILLIAN PEARLE GREEN, Classifier. FLORENCE HUGHES, Cataloguer. ALICE NEWMAN HAYS, Supervisor Department of Serials. HARROLD TRADER, Supervisor Shelf and Loan Department. MARTHA ELIZABETH HAVEN, in charge of Accession Department. BELLE HEBER THOMPSON, Loan-Desk Clerk. ELIZABETH HADDEN, Assistant to Cataloguer. HELEN WATERMAN ROLFE, Stenographer. RAYMOND GRIFFIN BARNETT, ALBERT BERNARD CHEADLE, BENJAMIN CLIFFORD DEY, ANNA GERTRUDE HALL, IDA MAY PETERSON, OMAR CORWIN SPENCER, MERLE HARROLD THORPE, ROY PEARL THORPE, Student Assistants. GEORGE MARTINSON, BENJAMIN PALMER OAKFORD, Assistants in Law Library.

The Library is open every University week day from 8 a. m. to 10 p. m., and on Saturday and during the shorter vacations from 8 a. m. to 3:30 p. m. Special hours are arranged for the summer vacation. Officers of the University, and students engaged in advanced work, upon recommendation of their instructors, have access to the shelves. Books that are not needed for special reference work are loaned for home use for a limited period. A new card-catalogue, both by authors and by subjects, is being prepared. The cards for the sections of bibliography (including periodicals), philosophy, religion, sociology, history (including biography), and literature are already completed.

The Library now numbers seventy-eight thousand volumes. During the year ending July 31, 1903, there were added 6,506 volumes. Of these, 1,341 were by gift, the most notable being from Mrs. Jane L. Stanford, Mr. Thomas W. Stanford, President David S. Jordan, Mr. Timothy Hopkins, and Mr. Charles G. Lathrop.

The Library contains the following special collections:

The Timothy Hopkins Railway Library of six thousand volumes. This collection is unusually rich in material for the study

of the early history of railways in Europe and America, and the donor has made provision for the maintenance and increase of the collection. A catalogue of the library has been published.

The Thomas W. Stanford Australasian Library of several thousand volumes and pamphlets relating to Australasia.

The Hildebrand Library, consisting mainly of works on Germanic Philology and Literature collected by the late Professor Hildebrand of Leipsic.

In addition to the University Library, various large collections within reach are available for reference, including the Free Public, Mechanics' Institute, and other libraries in San Francisco. There are also at the University several private libraries to which advanced students have access. Notable among these is Dr. Branner's Geological Library, a list of whose periodicals has been added to the University Library catalogue.

COURSE IN BIBLIOGRAPHY

General Bibliography.—The aim of this course is to give practical aid to students in the preparation of Bibliographies. Bibliographical method, the bibliographies of special subjects, and the principal books of reference will be discussed, and individual work carried out under direction in the University Library.

1 hr., 2d semester

(DODGE)

LELAND STANFORD JUNIOR MUSEUM

HARRY C. PETERSON, Curator. EDWIN ALONZO AUSTIN, Assistant Curator. BUNKICHI SHIBATA, Museum Assistant. GEORGE MERRICK HERRON, ALEXANDER HENRY LIDDERS, OSWALD SWINNEY LOUSLEY, Assistants.

In 1880, Leland Stanford, Jr., then eleven years of age, accompanied his parents on a trip through Europe. During this journey he purchased mementoes of the various places visited—at first merely with the object of having a collection to recall the pleasures of his European trip. Later he became ambitious to broaden his collection, and in 1883, on a second trip to Europe, he began to pursue his archæological researches and acquisitions with the idea of finally establishing a great museum. The Leland Stanford Junior Museum was designed by Mrs. Stanford as a memorial to perpetuate this idea, and the large and valuable additions to the original collection are mainly her gift to the Museum.

The building is of Grecian architecture, built of solid concrete, and absolutely fireproof. The cornerstone was laid May 14, 1891, the Museum being opened to visitors in 1894. In 1898 two large annexes were begun, and finished the year following. In 1902 contracts were let for the completion of the building as originally planned. When finished in 1906, the available exhibition floor space will be over 200,000 square feet, and 90,000 square feet for storage purposes.

The four figures surmounting the dome parapet represent (from left to right) Plutarch, Aristotle, Herodotus, and Plato. Those on each side of the main entrance represent Menandro, the Greek dramatist, and Faith, both being copies of those in the Vatican. The mosaics on the outer walls are, beginning with the left: Rome, Painting, Architecture, Egypt, Cyprus, Sculpture, Archæology, and Progress and Civilization. Those over the doors are History, Literature, and Old Art.

The doors are of beaten bronze, being made especially for the Museum, and patterned after the famous bronze doors in

Florence, Italy. The facing of the vestibule is of a composite marble from the quarries in the Sierra Nevada Mountains in Amador County, California.

The collection made by Leland Stanford, Jr., between 1880 and 1884, has been placed in two rooms (A and B), and in room A his own arrangement is reproduced in every detail, including all the labels written by himself. This collection was gathered, arranged, and catalogued by Leland himself before his fourteenth year. In the room adjoining (B) are found many interesting mementoes of his early life. Here also is the last collection made by him prior to his demise at Florence, Italy, March 13, 1884. These two rooms are especially rich in Egyptian bronzes, Tanagra figurines, Greek and Roman glass, armor, mosaics, Sèvres and Dresden ware, etc. Owing to lack of space, additional material belonging to this room has been placed in room T. It includes the "locomotive" hand-car and trailer, buggies, fire-engine, boat, etc., all being the personal belongings of Leland Stanford, Jr.

The Memorial room (O) was designed to contain the many personal mementoes of Senator and Mrs. Stanford. Here are found ancestral portraits of the Stanford and Lathrop families; two cases devoted to the Grant family collection; racing trophies; Muybridge's first photographs of "Animals in Motion," and subsequent works; the "Last Spike," and other historical relics of the Central Pacific Railroad. To Mrs. Stanford is due the large assortment of beautiful rare lace—Point, Alençon, Chantilly, Duchesse, Honiton, Valenciennes, and others; also rare India shawls, fans, Worth dresses, antique jewelry, and European souvenirs.

The vestibule and upper corridor are devoted principally to statuary, old and rare books, papers, etc., including Duc de Loubat's famous reproductions of Aztec and Mexican manuscripts, a 16th century illuminated Turkish Koran of great value, Lord Kingsborough's "Antiquities of Mexico," and German engravings.

The Di Cesnola Collection (rooms C and E) contains five thousand pieces of Greek and Roman pottery and glass from the Island of Cyprus. A portion of the Greek and Roman materials recently gathered by Mrs. Stanford has been placed on view in room D. It includes rare iridescent glass, Etruscan vases, Roman lamps, sculptured marble heads, and bas-reliefs of the first century. The Pompeian and Venetian cases are being arranged

as fast as the articles arrive from Europe. Here also is the large collection of Greek and Roman coins, and set of Papal medals, loaned to the Museum by Mr. Timothy Hopkins.

Room F contains a valuable collection of Venetian glassware and chandeliers, mirrors, and mosaic art pieces, all the gift of Messrs. Salviati & Camerino, of Venice, Italy.

Rooms G and H will be devoted exclusively to Egyptian and kindred collections. They are especially complete in mummies, sarcophagi, responders, scarabs, beads, amulets, pottery, and mummy cloth embroideries, the latter the gift of Mr. Timothy Hopkins. Dr. W. M. Flinders Petrie and Mr. H. W. Seton-Karr are represented by several cases of valuable material. Mrs. Anna Lathrop Hewes contributed a large collection of varied and valuable objects. Among the recent additions (room H) may be mentioned the famous Kyticas Collection of veritable Egyptian antiquities, embroideries, beads, Palestine costumes, rare Sudanese and Bisherin armor, the Brugsch Bey collection of bronzes, terra cottas, porcelains, etc.,—all the gift of Mrs. Stanford.

The American Collection (I) is made up of mound relics, Indian baskets, Acoma ware, utensils, Alaskan canoes, totem poles, etc. In this room is also a display of material of the stone age, purchased by Mrs. Stanford in Copenhagen, Denmark.

The South Sea Island and India material secured by Mrs. Stanford in the fall of 1903 has been placed in Room J. It is rich in embroideries, tapa cloth, silver, brass, ebony, and ivory carved ware, and native utensils. It includes also a choice collection of Samoan relics and war implements, given by President Jordan.

In the Chinese and Japanese room (K) there is a rich collection of bronzes, arms, china, lacquer, cabinets, musical instruments, rich embroideries, and specimens of wood-carving, including the Imperial bedroom set, a marvel in wood-carving and inlaid work.

During the spring of 1902, Mrs. Stanford paid an extended visit to the Hawaiian Islands and Japan. In room L will be found the result of her purchases for the Museum. The collection installed here is particularly rich in cloisonne, Satsuma, porcelain, embroideries, Buddhistic images, dwarf trees, and ivory carvings. The large bronze Koro, which is over 300 years old, in the center of the room, is one of the finest in the United States.

Room M is filled with Oriental and European embroidery, comprising Turkish, Roumanian, Grecian, Spanish, etc.

In Room N is installed the Korean Collection presented to the Museum by Mr. Timothy Hopkins. Many specimens of native dress, household utensils, sleeping mats, chests, shoes, and art products are included in the display. With them is also a set of woven embroidery samples, extending over several centuries, complete sets of which it is now impossible to obtain. The Korean and Japanese screens are very old and unique.

The Fine Arts Collections (rooms P, Q, R, S, T, U, and V), have been gathered mainly by Mrs. Stanford, many new additions having been made during the past year. A very full exhibit of copies of the old masters, especially Madonnas, has been hung in room U, while in room T will be found the famous Foid Collection of California Mission paintings, twenty-four in number. At the present time there are over five hundred paintings in the Museum, including pictures by Meissonier, Bouvier, Bonnat, Richter, Carolus-Duran, Van Wyck, Bierstadt, Ch. Landelle, Courtois, Piot, Munier, Brozik, Ricci, Humphrey Moore, Porteilje, Goodwin, Bradford, E. Paoletti, Mazzoni, Keith, Hill, Charles Nahl, and many others. A recent addition given by Mr. Charles G. Lathrop is the large painting by C. T. Wilson, "Bridal Veil Falls of the Colorado River." The Anna Lathrop Hewes collection of paintings, statuary, mosaic, etc. (room V), and a collection of pictures in oil (room Q), presented by the Hon. Thomas Welton Stanford, of Australia, are also noteworthy. The ceramics collected by Mrs. Stanford include Sèvres, Dresden, Royal Berlin, Persian, Pompadour crystal, Bohemian, Venetian, and numerous other wares.

In the Natural History department, temporarily placed in room Y, there is a large collection of birds' eggs and skins, donated by the late Thomas Flint, of San Francisco. With them is a collection of mounted mammals, the most important being a series of the fur seals of the Pribilof Islands, presented by President Jordan. The nucleus of a mineral exhibit is in room X.

The Stanford Historical Collection is now being gathered, and is for the present installed in room S. Many of the original sketches of the competitive plans of the University are here, including the large bird's-eye view of the accepted plans by Shepley, Rutan, and Coolidge, of Boston, Mass. A full-sized photographic reproduction of the Endowment Grant, presented by

Crothers and Crothers; early photographs of construction, etc. It is especially requested that all members of the Alumni send in any material they may have for this department. Articles especially desired are photographs of University life and incidents from 1887 to date; also lithographs, illustrations, press clippings, programs, souvenirs, copies of University publications, Quads, etc.

To Mr. F. W. Covey is due the formation of the Palo Alto Stock Farm exhibit, which, when completed, will prove of special value to all interested in blooded stock. At present it is placed in room S, and contains all the records, catalogues, data, and library of the Farm, photographs, oil paintings, etc., of celebrated horses; mounted skeletons of Occident, Electioneer, and Palo Alto; the greatest and last of the high-wheeled sulkies; as well as other articles associated with the history of the Stock Farm.

Through the courtesy of Wells, Fargo & Co., all gifts intended for the Museum will be transported free of charge over their lines if addressed to The Curator, Leland Stanford Junior Museum, Stanford University, California.

The Museum is open to visitors daily from 10 a. m. to 5 p. m., Sundays excepted.

THE MEMORIAL CHURCH

The Rev. D. CHARLES GARDNER, Chaplain. Mr. ARTHUR L. SCOTT BROOK, Organist.*

The MEMORIAL CHURCH, erected by Mrs. Stanford "to the glory of God and in loving memory of my husband, Leland Stanford," was dedicated January 25, 1903. The building stands in the center of the inner quadrangle group facing the main entrance. It is of modified Moorish-Romanesque architecture, and in the form of a cross with rounded ends. The extreme length, through vestibule, nave, and apse, is one hundred and ninety feet; the extreme width, through transept wings, one hundred and fifty-five feet. The four gables of nave, transept wings, and apse are united by a twelve-sided belfry tower, whose spire, surmounted by a cross, rises to a height of one hundred and eighty-eight feet. Exteriorly the tower is flanked upon the four corners by turrets rising from the angle between the gables. It is engirdled at the base by an outside gallery, and is strengthened by an effective use of the flying-buttress. The tower contains the clock with its four faces, a chime of four bells, tuned to correspond with the Westminster chimes, and twenty-four pictorial windows. The church is built of buff sandstone, rough-hewn, with tooled face on the inside, relieved by elaborate carved designs and fifteenth-century mosaics of great beauty. The features of the apse are the marble altar with its candelabra, life-size marble figures, and bas-relief of Gulio Ciseri's painting of "The Entombment," the three great stained-glass windows, the marble statues of the twelve apostles, and the mosaics covering the entire wall surface. Behind the altar is a replica of Cosimo Rosselli's "Last Supper," from the Sistine Chapel at Rome. To the right and left, running to the arch of the apse, are long panels, a *gloria dei angeli*, surmounted by reproductions, in mosaic, of Michael Angelo's prophets. The cove ceiling, springing from the crown of the great arches, is also

* Absent on leave, second semester, 1903-04. Mr. JOSEPH SMITH is acting organist during the absence of Mr. SCOTT BROOK.

done in mosaic representing angels with trumpets. This ceiling narrows to a thirty-two foot open circle, and through this is seen the frescoed ceiling of the true dome, one hundred and six feet above the floor. The nineteen large stained-glass windows of nave, transept, and apse, in a series of appropriate designs, illustrate the life of Christ. The windows of the clerestory contain single figures of Old and New Testament characters. Above the organ gallery is the great rosette window with Hoffman's Christ child as a center picture. Flanking the rose window is the organ, separated into two parts, with the console near the center of the gallery rail. The organ has forty-six stops and nearly three thousand pipes, and the several parts are connected and operated by electricity. The seating capacity of the Church, including galleries, is about seventeen hundred.

The Memorial Church is non-sectarian in character and method. It is bound by no sectarian creed, or book, or polity; at the same time it is linked to historic Christianity through its ministry and sacraments. The services are informal and varied, following no particular liturgy, and yet conserving the great principles of Christian worship. The sacrament of the Lord's Supper is administered on the first Sunday of each month, and to this the Church invites "all them that love the Lord Jesus Christ in sincerity and truth."

Baccalaureate Sermon—May 24, 1903

The Rev. R. HEBER NEWTON, D. D.—*The Patterns on the Mount.*

Special Preachers, 1903-04

Dr. ADRIAN HOFMEYER, The Dutch Reformed Church, South Africa.

The Rev. FRANK L. HOSMER, Unitarian Church, Berkeley.

The Rev. CHARLES REYNOLDS BROWN, First Congregational Church, Oakland.

The Rev. JOHN HEMPHILL, D. D., Calvary Presbyterian Church, San Francisco.

The Rev. C. M. HILL, Tenth-Avenue Baptist Church, Oakland.

The Rev. E. R. DILLE, D. D., First Methodist Church, Oakland.

The Rev. J. W. CHAPMAN, D. D., Presbyterian Evangelist, New York.

The Rev. FREDERICK W. CLAMPETT, D. D., Trinity (Episcopal) Church, San Francisco.

The Rev. JOHN W. DINSMORE, D. D., Presbyterian Church, San José.

The Rev. JOHN S. MCINTOSH, D. D., President Presbyterian Theological Seminary, San Anselmo.

The Rt. Rev. WILLIAM FORD NICHOLS, D. D., Bishop of California.

The Rev. Bp. JOHN W. HAMILTON, D. D., Methodist Episcopal Church.

The Rev. BRADFORD LEAVITT, First Unitarian Church, San Francisco.

The Rev. GEORGE C. ADAMS, D. D., First Congregational Church, San Francisco.

The Rev. ERNEST E. BAKER, Presbyterian, Oakland.

UNIVERSITY LECTURES, ETC.

UNIVERSITY LECTURES

Public lectures on subjects of general interest, by members of the Faculty or by persons invited from abroad, are given from time to time. The following is the list of such lectures for the calendar year ending March, 1904:—

Commander BOOTH TUCKER, of the Salvation Army, New York.
Mr. GIFFORD PINCHOT, Chief of the U. S. Bureau of Forestry, Washington, D. C.—*Forestry as a Profession.*

Professor MELVILLE BEST ANDERSON—*Twelfth Night*. Instructor
EDWARD KIRBY PUTNAM—*Everyman*.

Mr. EDWARD BERWICK, Monterey—*Parcels Post of the United States*.

Dr. J. MAY, Palo Alto—*Highways and Byways of Jerusalem*, with lantern illustrations.

The Hon. LEONG KAI-CHEN, Grand Vice-President of the Chinese Reform Association—*Questions of Chinese Reform*.

Professor JACQUES LOEB, University of California—*Artificial Cross-Fertilization in Starfishes and Sea-Urchins*.

Mr. JEROME BARKER LANDFIELD, University of California—*The Present Condition in Southeastern Europe in the Light of History*.

Mrs. JOSEPHINE RAND ROGERS, Palo Alto—Readings from Stephen Phillips's *Herod*.

Mr. WILLIAM BUTLER YEATS—*The Heroic Poetry of Ancient Ireland*.

Mr. HARRY DE WINDT—*From Paris to New York Overland*.

Mr. MONTAVILLE FLOWERS—Readings from General Lew Wallace's *Ben Hur*.

Lieut. GODFREY L. CARDEN, R. C. S.—*Engine Display of the Louisiana Purchase Exposition*.

Mr. HOMER DAVENPORT, New York—*The Power of a Cartoon*.

MUSICAL RECITALS, ETC.

1. Combined Concert by the California and Stanford Mandolin and Glee Clubs.
2. Presentation of Pailleron's comedy, *Le Monde ou l'on S'ennuie*.

3. Presentation of *Everyman* and *Twelfth Night*, by the Ben Greet Company.
4. Concert by the Pasmores.
5. Concert by the Metropolitan Opera House Orchestra.
6. Presentation of J. Palgrave Simpson's drama, *A Scrap of Paper*, by the Faculty Dramatic Club.
7. Concert by the Royal Italian Band.
8. Presentation of *David Garrick*, by the Sophomore Class.
9. Concert by the University Glee and Mandolin Clubs.

CHAMBER CONCERTS.

1. By Mr. WENZEL KOPTA, Miss AUGUSTA COTTLOW, Mr. THEODORE MANSFELDT, and Mr. FRED MAURER.
2. By the Kopta String Quartet.
3. By the Kopta String Quartet, with Mrs. E. M. BLANCHARD.

UNIVERSITY ASSEMBLIES

1. Addresses by Associate Professor A. G. NEWCOMER, on *Stanford Journalism*, and by Mr. GEORGE E. CROTHERS, '95, on the *Purposes and Ideals of the Founders as Revealed by the University Trusts*.
2. Address by the Hon. WHITELAW REID, of New York, on *Newspaper Work from an Editor's Standpoint*.
3. Address by President THEODORE ROOSEVELT.
4. Addresses by President JORDAN, by W. B. BARNHISEL, R. O. HADLEY, J. H. PAGE, and C. M. MARRACK, of Stanford, and by GEORGE SIBLEY and J. A. BREWER, of the University of California.
5. Addresses by President JORDAN and Instructor PUTNAM.
6. Addresses by Associate Professor A. G. NEWCOMER, on *The Elizabethan Stage Society*, and by Mr. BEN GREET, on *The Drama*.
7. Addresses by President JORDAN, Professor A. T. MURRAY, and Mr. CHARLES K. FIELD, '95.
8. Address by Professor BERNARD MOSES, of the University of California, on *The Spanish Occupation of the Philippines*.
9. Addresses by Professor FRANK ANGELL and Mr. WILLIAM T. REID, JR.
10. Addresses by President JORDAN and Dr. HARRY B. REYNOLDS, '96.

- Commencement Address—May 25, 1903
Professor EWALD FLÜGEL—*"Our Anniversary is one of Hope."*
- Founders' Day Address—March 9, 1904
The Hon. JOHN P. IRISH, Naval Officer of Customs, San Francisco.

INTERCOLLEGIATE DEBATES

INTERCOLLEGIATE DEBATE

An INTERCOLLEGIATE DEBATE, under the auspices of the Associated Students of the University of California and of the Leland Stanford Junior University, is held in San Francisco in April of each year.

The question for 1904 is, "*Resolved*, That in cities of the United States of over forty thousand inhabitants a system of municipal government concentrating executive and administrative powers in the mayor should be adopted."

The Stanford Contestants are HOWARD MILTON LEWIS, FRANK ROEHR, ALEXANDER SHERIFFS; alternate, WILLIAM LEEPER BLAIR.

CARNOT DEBATE

The Carnot Medal, presented by the Baron de Coubertin, for the purpose of encouraging the study and discussion, in California, of French history and politics, is awarded annually to the student who, in the opinion of the judges, proves himself the best debater in a contest held for the purpose between Stanford University and the University of California.

Under the rules for 1904 a general subject for the debate was announced in November, 1903, but the particular phase of the question, as embodied in a resolution, was not made known to the contestants until two hours before the time set for the debate.

The general subject for 1904 was the French judicial system, and the particular question debated was, "*Resolved*, That the French judiciary should be made more completely independent of both the legislative and executive departments." The debate was held at the University of California, February 5, 1904. The contestants were HART GREENSFELDER, JOSEPH PATRICK LUCEY, and FRANK ARMAND MANDEL, of the University of California, and HOWARD MILTON LEWIS, FRANK ROEHR, and ALEXANDER SHERIFFS, of Stanford. The judges were Judges FRANK J. MURASKY, JAMES M. SEAWELL, and M. C. SLOSS, of the Superior Court of San Francisco. The medal was awarded to JOSEPH PATRICK LUCEY, of the University of California.

UNIVERSITY ASSOCIATIONS

PHILOLOGICAL ASSOCIATION

Professor JULIUS GOEBEL, *President*.

Instructor EDWARD KIRBY PUTNAM, *Secretary*.

The UNIVERSITY PHILOLOGICAL ASSOCIATION was organized September 17, 1892, for the purpose of reading and discussing the results of scientific investigations in language and literature. The membership consists of the instructors and advanced students in the different language departments in the University. The regular time of meeting is the first Thursday of each academic month, excepting September, January, and May, at 2:30 p. m. The following papers were presented during the calendar year ending March, 1904.

March 26, 1903. Mr. EDWARD KIRBY PUTNAM—*Fielding's Theory of Fiction*. Assistant Professor RAYMOND MACDONALD ALDEN—*The First English Translation of Ariosto's Satires*.

April 30. Assistant Professor COLBERT SEARLES—*Gaston Paris and the Study of Grammar*. Assistant Professor PIERRE JOSEPH FREIN—*Gaston Paris and the Student of Literature*. Associate Professor OLIVER MARTIN JOHNSTON—*Gaston Paris and Romania*. Professor JOHN ERNST MATZKE—*The Personality of Gaston Paris*.

October 1. Professor JOHN ERNST MATZKE—*A Neglected Source of Corneille's Horace*.

November 5. Professor JULIUS GOEBEL—*Alchemy in Goethe's Faust*. Professor HENRY RUSHTON FAIRCLOUGH—(a) *Trochaic Septenarii in Terence*. (b) *Note on Theocritus, Idyll 2, 82*.

December 3. Assistant Professor JEFFERSON ELMORE—*The Subjunctive in the So-called Restrictive Quod Clauses*. Assistant Professor CARL COSMO RICE—*The Etymology of French aller, Provençal anar, Spanish andar, Italian andare, etc*. Dr. BENJAMIN OLIVER FOSTER—*Interpretation of Gellius, vi, 7*.

February 4, 1904. Assistant Professor KARL G. RENDTORFF—*Theodor Mommsen the Man*. Assistant Professor JEFFERSON ELMORE—*Mommsen and the New Humanism*. Mr. ERNEST WHITNEY MARTIN—*Mommsen and Epigraphy*. Professor ARLEY BARTHLOW SHOW—*Mommsen the Historian*.

March 4. Professor AUGUSTUS T. MURRAY—*Euripides' 'Medea'*.

THE SCIENCE ASSOCIATION

Professor RUFUS LOT GREEN, *President*.

Assistant Professor LILLIEN J. MARTIN, *Vice-President*.

Assistant Professor FREDERICK JOHN ROGERS, *Secretary*.

The SCIENCE ASSOCIATION was organized January 17, 1894. Original investigations and papers of general interest on scientific topics are presented from time to time.

The following papers were read before the Association between September, 1903, and April, 1904:—

Associate Professor GEORGE JAMES PEIRCE—*Irritability of Plants*.

Associate Professor GEORGE CLINTON PRICE—*Some Phases in the History of Embryology*.

Instructor HALCOTT CADWALADER MORENO—*The Calendar*.

Professor FERNANDO SANFORD—*An Undescribed Form of Radiation*.

Professor JAMES PERRIN SMITH—*Periodic Migrations between the Atlantic and Pacific Coasts of the Pacific Ocean*.

Associate Professor FRANK MACE MCFARLAND—*The Nudibranch Mollusca of Monterey Bay*.

Assistant Professor FREDERICK JOHN ROGERS—*Ions and Electrons*.

THE HOPKINS LABORATORY

Professors CHARLES HENRY GILBERT and OLIVER PEEBLES JENKINS, *Directors*.

THE HOPKINS SEASIDE LABORATORY, founded by the liberality of Mr. Timothy Hopkins, of San Francisco, is an organic part of the University, and constitutes a summer session for advanced biological study. The buildings are located at Pacific Grove, two miles west of Monterey, and stand on a low bluff immediately facing the sea. They consist of two two-story structures capable of accommodating about eighty students, and contain four general laboratories, one lecture-room, seventeen private rooms for special investigators, and a dark-room for photography. They are provided with aquaria, running water, and all necessary facilities for biological study. The library and apparatus of the University are available for use in the Laboratory.

SESSION OF 1904

The session of 1904 will begin Monday, June 6th. No elementary work will be undertaken, but provision for advanced students and investigators will be made.

CATALOGUE OF STUDENTS

NAME	HOME ADDRESS	MAJOR SUBJECT
Abbott, Dorothy,	<i>Stanford University,</i>	Greek
Abend, Hallett Edward,	<i>Lewiston, Idaho,</i>	English
Ackerman, Irving Charles,	<i>San Francisco,</i>	Law
Adams, Irving W.,	<i>Palo Alto,</i>	Electrical Eng.
Adams, Mame,	<i>Hiawatha, Kans.,</i>	English
Alder, Margueritte,	<i>Redlands,</i>	Greek
Allen, Ben Shannon,	<i>Woodland,</i>	Law
Allen, Chester Boyce,	<i>San José,</i>	Geology and Mining
Allison, Perry Tice,	<i>Colusa,</i>	Mechanical Eng. <i>Sp.</i>
Altnow, George Gustav,	<i>Everett, Wash.,</i>	Philosophy
Alvord, John Hartwell,	<i>Ventura,</i>	English
Alward, Roy Carleta,	<i>Frederickton, N. B.,</i>	Law
Ames, Alden,	<i>San Francisco,</i>	Law
Anderson, Anders Herder,	<i>Stanford Univ.,</i>	Chemistry <i>Sp.</i>
Anderson, Chloe Case,	<i>San José,</i>	English
A. B., Stanford, 1903.		
Anderson, Charles William,	<i>Ottumwa, Ia.,</i>	Economics
*Anderson, Irving,	<i>Wallace, Idaho,</i>	Geology
A. B., Stanford, 1903.		
Anderson, Malcolm Playfair,	<i>Menlo Park,</i>	Zoology
Anderson, Robert Van Vleck,	<i>Menlo Park,</i>	Geology
- Aniya, Seishu,	<i>Okinawa, Japan,</i>	Economics
- Anju, Shohachi,	<i>Saga, Japan,</i>	Economics
Anthony, Anna Gertrude,	<i>Central City, Neb.,</i>	Entomology
B. S., Univ. of Wisconsin, 1899.		
Anthony, Edith Anne,	<i>Pacific Grove,</i>	Mathematics
Applegate, Bessie Bell,	<i>Klamath Falls, Ore.,</i>	German
Armstrong, Hubert Eugene,	<i>Boise, Idaho,</i>	Physiology
Arps, George Frederick,	<i>Cary, Ill.,</i>	Education
Arqués, Francisca Luisa,	<i>San José,</i>	Romanic Lang.
A. B., Stanford, 1904.		
Ashley, Florence Josephine,	<i>Stockton,</i>	English
Ashton, George Humboldt,	<i>Palo Alto,</i>	Electrical Eng. <i>Sp.</i>

* Work completed summer, 1903.

Atherton, Cecelia Freeman,	<i>Lakeport,</i>	History
Atwood, Clarence Goodrich,	<i>Fernando,</i>	Law
Austin, Reginald,	<i>San José,</i>	Chemistry
Avery, Kenneth Newell,	<i>Detroit, Mich.,</i>	Economics
Avery, Marietta Louise,	<i> Ft. Collins, Colo.,</i>	English
Avery, Noyes Latham,	<i>Grand Rapids, Mich.,</i>	Economics
Avery, Paul W.,	<i>Washington, D. C.,</i>	Chem. Eng.
Ayers, Julia Caswell,	<i>Berkeley,</i>	Physiology
Bacon, George,	<i>Haddonfield, N. J.,</i>	Chemistry Sp.
Bailey, Laura Chapin,	<i>San José,</i>	Economics
Baker, Anne Hollis,	<i>San Francisco,</i>	French
Baker, Cleveland Hall,	<i>Oakland,</i>	History
Baker, Grace Amelia,	<i>Sorrento,</i>	English
A. B., Stanford, 1904.		
Baker, William Howard,	<i>San José,</i>	Education
Balcomb, Jean Bart,	<i>Mayfield,</i>	Geology and Mining
A. B., Stanford, 1901.		
Balcomb, Mary Florence,	<i>Mayfield,</i>	English
Balcomb, Rose Gibbs,	<i>Palo Alto,</i>	English
Baldridge, Elizabeth Coulter,	<i>Albuquerque, N. M.,</i>	English
Baldwin, Grace Sarah,	<i>Ontario,</i>	History
Baldwin, Nathaniel,	<i>Provo City, Utah,</i>	Physics Sp.
Ball, Chester Alexander,	<i>Woodland,</i>	Law
Ball, Robert Bruce,	<i>Bunning,</i>	Civil Eng.
Balsbaugh, Mary Alice,	<i>Palo Alto,</i>	Latin
Bandini, Ralph,	<i>Pasadena,</i>	Law
Bansbach, Antonia Ethel,	<i>Denver, Colo.,</i>	German
Bansbach, Louis Philip,	<i>Denver, Colo.,</i>	History
Baptista, John Maximilian,	<i>New Bedford, Mass.,</i>	Economics
Barbour, Nathan Powell,	<i>Lockeford,</i>	Chemistry
Barbur, Le Roy Wright,	<i>Los Angeles,</i>	Geol. and Mining
Barcalow, William Strader,	<i>Corning,</i>	Mechanical Eng.
Barkan, Hans,	<i>San Francisco,</i>	Physiology
Barnard, Jessie Elizabeth,	<i>Chico,</i>	History
Barnett, George De Forest,	<i>Santa Rosa,</i>	Chemistry
Barnett, Raymond Griffin,	<i>Kansas City, Mo.,</i>	Law
Barnhouse, Mabel Jean,	<i>Watsonville,</i>	Latin
Barret, Grace Ligon,	<i>Redwood City,</i>	German
Barrett, Richardson Damon,	<i>Herman, Minn.,</i>	Economics
Barrett, Richard Watts,	<i>Stanford University,</i>	Law
Bartruff, Jeannette Eleanor,	<i>Palo Alto,</i>	Latin

Bartruff, Mary Macbride,	<i>Paio Alto,</i>	English
Baskerville, Harry Hubert,	<i>Los Angeles,</i>	Geol. and Mining
Batchelder, Doris Elizabeth,	<i>Menlo Park,</i>	German
Batchelder, Francis Joseph,	<i>Newark, N. J.,</i>	Civil Eng.
Bateman, William George,	<i>Salt Lake City, Utah,</i>	Chemistry
Bates, Callie Hildred,	<i>Lawrence,</i>	German
Baum, Anna Caroline,	<i>Palo Alto,</i>	German Sp.
Baum, Mabel Helen,	<i>Denver, Colo.,</i>	Romanic Lang.
Beach, Jesse Marion,	<i>Colton,</i>	Chemistry
Beach, True Ellen,	<i>Placerville,</i>	Physiology Sp.
Beal, Charles Laurant,	<i>Nodaway, Mo.,</i>	English Sp.
Bean, Jane Louise,	<i>San José,</i>	History
Beans, Eulalie Dentworth,	<i>Mishawaka, Ind.,</i>	English
Beardsley, Charles Alexander,	<i>Campbell,</i>	Law
Beasley, Etta Goldie,	<i>Modesto,</i>	Physics
Beattie, William Alfred,	<i>Santa Clara,</i>	Economics
Beckwith, Henry Truman,	<i>Providence, R. I.,</i>	Geol. and Min.
Bee, Charles Everett,	<i>Cupertino,</i>	Mining Eng.
Beebe, Graham Hughes,	<i>Porterville,</i>	Law
Beebe, Lela June,	<i>Watsonville,</i>	Physiology
Beebee, Ralph Augustus,	<i>Gridley,</i>	Civil Eng.
Beeger, Gertrude Margaret,	<i>Rcdwood City,</i>	German
Beggs, Lulu Mabel,	<i>Los Gatos,</i>	English
Behlow, Edgar Augustus,	<i>San Francisco,</i>	Electrical Eng.
Behlow, William Wallace,	<i>Napa,</i>	Physiology
Bell, Eric Temple,	<i>San José,</i>	Mathematics
Bell, Harry Wesley,	<i>Healdsburg,</i>	Mining Eng.
Bell, Jessie Newcomb,	<i>Santa Barbara,</i>	English
Bell, Rosa Edith,	<i>Santa Rosa,</i>	English
Bell, Ruby Green,	<i>Stanford University,</i>	Entomology
A. B., Stanford, 1902.		
Bernhard, George William,	<i>Fresno,</i>	Electrical Eng.
Berry, Jessie Verna,	<i>Palo Alto,</i>	Chemistry
Bertheau, Rudolf César,	<i>San Francisco,</i>	Law
Bethell, Laura,	<i>San José,</i>	English
Betz, Mary Elizabeth,	<i>Spokane, Wash.,</i>	German
Beverson, Letcher Robert.	<i>San José,</i>	Mechanical Eng.
Beymer, William Gilmore,	<i>Parnassus, Pa.,</i>	Drawing Sp.
Bickel, Karl August,	<i>Geneseo, Ill.,</i>	English Sp.
Bille, Anna Matilda,	<i>Palo Alto,</i>	German
Billings, William Elbridge,	<i>Concord,</i>	Law

A. B., Stanford, 1908.

Bittner, Harvey Peter,	<i>Albuquerque, N. M.,</i>	German
Blair, Elsie M. Bushee,	<i>Stanford University,</i>	English
Blair, Thomas Arthur,	<i>San Jacinto,</i>	Mathematics
Blair, William Leeper,	<i>San Jacinto,</i>	Economics
Blake, William Horton,	<i>Palo Alto,</i>	Geol. and Mining
Blanchard, Frederick William,	<i>Palo Alto,</i>	Electrical Eng. <i>Sp.</i>
Bliss, Philip Paul,	<i>Santa Cruz,</i>	Physiology
Blodget, Percy Langdon,	<i>Bakersfield,</i>	Mechanical Eng. <i>Sp.</i>
Blodget, Rush Maxwell,	<i>Bakersfield,</i>	Law <i>Sp.</i>
Blood, Herbert Theodore,	<i>Denver, Colo.,</i>	Law
Blust, Hazel Juliet,	<i>Los Angeles,</i>	Latin
Blynn, Katharine Harriette,	<i>Stanford Univ.,</i>	Mathematics
A. B., Indiana University, 1892.		
Boalt, Gilbert Denison,	<i>Palermo,</i>	Law
A. B., Stanford, 1903.		
Bodley, Grace Majella,	<i>San José,</i>	History
Boehncke, Paul,	<i>Los Angeles,</i>	German
Bogle, Lawrence,	<i>Seattle, Wash.,</i>	Geol. and Mining
Bogue, Georga Farrington,	<i>Stockton,</i>	English
Bolin, John Siegfried,	<i>San José,</i>	Education
Bonnell, Cornelia,	<i>Palo Alto,</i>	Physiology <i>Sp.</i>
Bonte, Harmon Storer,	<i>Sacramento,</i>	Civil Eng.
Borough, Randal William,	<i>San Francisco,</i>	Drawing
Bothwell, Ina Grace,	<i>Salt Lake City, Utah,</i>	English
Boulware, Lucretia,	<i>Palo Alto,</i>	Latin
A. B., Stanford, 1904.		
Boulware, Stella,	<i>Palo Alto,</i>	French
Bounds, Irvin J.,	<i>Santa Clara,</i>	Economics
Bowman, Melville Bryant,	<i>San José,</i>	Electrical Eng.
Boyd, Ada Howard,	<i>Palo Alto,</i>	Mathematics
Boyd, De Estraye Cassell,	<i>San José,</i>	Greek
Boyle, John Lawrence,	<i>Raton, N. M.,</i>	Civil Eng.
Boynnton, Julia Salter,	<i>Los Angeles,</i>	English
Bradford, Nanelia Lou-Vee,	<i>Palo Alto,</i>	Chemistry
Bradley, Nathaniel Forsyth,	<i>Visalia,</i>	Law
A. B., St. Mary's College, Oakland, 1903.		
Bradley, Oliver U.,	<i>Tacoma, Wash.,</i>	Geology
A. B., Stanford, 1904.		
Bradley, William Harold,	<i>San Diego,</i>	Mechan. Eng. <i>Sp.</i>
Braly, Edith,	<i>Palo Alto,</i>	Botany
Braly, Norman B.,	<i>Palo Alto,</i>	Geology and Mining
Branner, Elsie,	<i>Stanford University,</i>	History

Braun, Carl Franklin,	<i>Cupertino,</i>	Mechanical Eng.
Brayton, Henrietta Ellen,	<i>Logan, Ia.,</i>	Botany
Bremner, Luella May,	<i>Santa Rosa,</i>	Entomology
Brennan, John Abram,	<i>San José,</i>	Law
Brennan, James F.,	<i>Santa Barbara,</i>	Law
Brenner, William Potts,	<i>Grant, Mont.,</i>	Geology-Mining
Breton, Edith Lillian,	<i>Palo Alto,</i>	Botany
Brew, Hal,	<i>Puyallup, Wash.,</i>	Civil Eng.
Britton, George Edward,	<i>Lawrence,</i>	Latin
Britton, Lewis Henry,	<i>Lawrence,</i>	History
Brooke, Banner Raymond,	<i>Portland, Ore.,</i>	Physiology
Brooks, Edna,	<i>Denver, Colo.,</i>	English
Brooks, Margaret Evelyn,	<i>Palo Alto,</i>	German Sp.
Brooks, Ruby Alice,	<i>San José,</i>	Latin
Brown, Agnes Elizabeth,	<i>Palo Alto,</i>	English
Brown, Arvin Harrington,	<i>Los Angeles,</i>	Law
Brown, Edna Jeraldine,	<i>Palo Alto,</i>	History
Brown, Grace Nims,	<i>Palo Alto,</i>	Physics
A. B., Stanford, 1902.		
Brown, Howell Chambers,	<i>Pasadena,</i>	Romanic Lang.
Brown, Martha Jane,	<i>Santa Cruz,</i>	Chemistry
Brown, Ruth Wentworth,	<i>Los Angeles,</i>	Latin
A. B., Univ. of Southern California, 1903.		
Brown, Thomas Bruen,	<i>Los Angeles,</i>	Civil Eng.
Brownlie, Charlotte Wakerley	<i>Vallejo,</i>	German
Brownlie, James William,	<i>Vallejo,</i>	Law
Brua, Elmer George,	<i>Rialto,</i>	Civil Eng.
Bruckman, Grace Hermanita,	<i>San Francisco,</i>	Physics
Bryan, Barnabas,	<i>Anacostia, D. C.,</i>	Geol.-Mining
Bryan, Norris Pinkney,	<i>Anacostia, D. C.,</i>	Law
Bryant, Arthur Sandford,	<i>Santa Rosa,</i>	Mechanical Eng.
Bryant, Claribel,	<i>Sioux City, Ia.,</i>	German
Bryant, Florence Marion,	<i>Redlands,</i>	Latin
B. L., Mt. Holyoke College, 1895; A. B., 1900.		
Bryant, James Cullen,	<i>Mayfield,</i>	Mathematics
A. B., Stanford, 1900.		
Bubb, Benjamin Clarence	<i>Mountain View,</i>	Drawing
Bundy, Eudora Beaufort,	<i>Los Angeles,</i>	Latin
Burge, Hazel Delle,	<i>Stockton,</i>	English
Burge, Noel S.,	<i>Stockton,</i>	Civil Eng.
Burke, Charles Victor,	<i>Palo Alto,</i>	Zoology
Burke, William Edmund,	<i>Palo Alto,</i>	Chemical Eng. Sp.

Burkhalter, Margaret,	<i>Los Angeles,</i>	History
Burnap, Christine Mary,	<i>Coronado,</i>	History
Burnham, Marie Sophrene,	<i>Los Angeles,</i>	English
Burr, Lewis G.,	<i>Case, Colo.,</i>	Electrical Eng.
Burr, Myron Carlos,	<i>Monrovia,</i>	Civil Eng.
Burr, Walter Gordon,	<i>Monrovia,</i>	Latin
Burtis, Prentis Townsend,	<i>San Francisco,</i>	Economics
Bush, Harry Edward,	<i>Redding,</i>	Mining Eng.
Bushnell, Helen Warner,	<i>Los Angeles,</i>	Mathematics
Butterfield, Hayden Gearhart,	<i>Cupertino,</i>	Electrical Eng.
Butterfield, Herbert Philip,	<i>Cupertino,</i>	Electrical Eng.
Button, Burnell DeWitt,	<i>San Diego,</i>	Mechanical Eng.
Button, Ned Hale,	<i>San Diego,</i>	Economics
Butts, Emma McNear,	<i>Pasadena,</i>	German
Byrd, Jane Carroll,	<i>Crawfordsville, Ind.,</i>	English
A. B., Stanford, 1904.		
Byrne, Leo Daniel,	<i>San Bernardino,</i>	Law
Byxbee, Ella Frances,	<i>Palo Alto,</i>	Chemistry
A. B., Stanford, 1896.		
Cahoon, John Frederic,	<i>Canton, N. Y.,</i>	Economics
Caldwell, Andrew Arthur,	<i>San José,</i>	Law
Camm, Horace Oliver,	<i>Petaluma,</i>	Electrical Eng.
Camp, Grace Cleone,	<i>Palo Alto,</i>	Entomology
Campbell, Joseph Bailey,	<i>Brentwood, Tenn.,</i>	English
Campbell, Jesse Eugene,	<i>Adin,</i>	Law
Campbell, William Howard,	<i>Watsonville,</i>	Physiology
Cantwell, Charles Abraham,	<i>Tulare,</i>	Law
A. B., Stanford, 1902.		
Carleton, Frank E.,	<i>Helena, Mont.,</i>	Geology
Carley, Ralph Felix,	<i>Quincy, Ill.,</i>	Electrical Eng.
Carothers, Edward Dawson,	<i>Palo Alto,</i>	Law Sp.
Carpenter, Nelson K.,	<i>Escondido,</i>	Civil Eng.
Carpenter, Susan Wilshire,	<i>Los Angeles,</i>	English
Carter, Estella Pearl,	<i>Palo Alto,</i>	Drawing
Carter, Lester Levi,	<i>Fresno,</i>	Civil Eng.
Carter, Ross Stagg,	<i>San Diego,</i>	Physiology
Carter, William Douglas,	<i>Quincy, Ill.,</i>	Mechanical Eng.
Cary, Iva Lois,	<i>Palo Alto,</i>	English
Cary, Luella,	<i>Palo Alto,</i>	English
Cassell, John Francis,	<i>San Francisco,</i>	Law
Caston, Charles C.,	<i>Santa Cruz,</i>	Law Sp.

Cates, Jay Elmer,	<i>Santa Clara,</i>	Latin
Cavallaro, Dominick Clifton,	<i>San José,</i>	Law
Center, Inez,	<i>Santa Clara,</i>	English
Chalfant, Alice Jessie,	<i>Ukiah,</i>	German
Chalmers, Alexander Jessiman,	<i>Centerville, Ore.,</i>	Physiology
Chamberlin, Allen Mortimer,	<i>San José,</i>	Geology and Mining
Chandler, Howard Hiram,	<i>Selma,</i>	Geology and Mining
Chandler, Robert Bowman,	<i>Los Gatos,</i>	Civil Eng.
Chandler, Winfred Buford,	<i>Baker City, Ore.,</i>	Law
Chapman, Lillian Garland,	<i>Cheyenne, Wyo.,</i>	Latin
Chappel, Halbert William,	<i>Stanford University,</i>	Physiol.
A. B., Stanford, 1901; LL. B., 1903.		
Charlebois, Emma Eulalie,	<i>Ventura,</i>	History
Charles, Shirley Mansfield,	<i>Palo Alto,</i>	Drawing
A. B., Stanford, 1903.		
Cheadle, Albert Bernard,	<i>Ottumwa, Ia.,</i>	Economics
Chenoweth, Orr M.,	<i>Redding,</i>	Law
Childs, Clarence Leroy,	<i>Palo Alto,</i>	Law
Christy, Fred Chase,	<i>Phoenix, Ariz.,</i>	Geol.-Mining
Clack, George Sidney,	<i>Menlo Park,</i>	Geology-Mining
Clapp, Charles Willard,	<i>Elmwood, Neb.,</i>	Economics
Clark, Ada Morse,	<i>Palo Alto,</i>	English
Clark, Bessie LaMar,	<i>San Francisco,</i>	English Sp.
Clark, George Herbert,	<i>Stockton,</i>	Law
Clark, Halbert Robb,	<i>San Francisco,</i>	Law Sp.
Clark, Lettie Macelia,	<i>San José</i>	History
Clark, Willis Arthur,	<i>Greeley, Colo.,</i>	Electrical Eng.
Clarke, Harry Carver,	<i>Fall River, Mass.,</i>	Physiol. Sp.
Clarke, Oliver Holman,	<i>Fall River, Mass.,</i>	Physiol. Sp.
Cleary, Mary Bissell,	<i>San Diego,</i>	Latin
Cleveland, Earle Townsend,	<i>San José,</i>	Physiology
Clift, Denison Halley,	<i>San Francisco,</i>	English
Close, John Manley,	<i>Palo Alto,</i>	English Sp.
Cloud, Roy Walter Noble E.,	<i>Redwood City,</i>	History
Clover, Katharine,	<i>Alhambra,</i>	English
Cochrane, Mary,	<i>San Bernardino,</i>	Latin
Cockrill, Emmet,	<i>Little Rock, Ark.,</i>	Mechan. Eng.
Cocks, Bertrand Richard,	<i>Palo Alto,</i>	Greek
Coddington, Carrie Lucia,	<i>San Bernardino,</i>	German
Coen, Thomas More,	<i>San Mateo,</i>	Law
Coffin, Robert Samuel,	<i>Santa Clara,</i>	English

Colberg, Henry John,	<i>Stockton,</i>	Mechanical Eng.
Colbert John Hutsinpillar,	<i>Ft. Dodge, Ia.;</i>	English
Cole, Ernest D.,	<i>Santa Ana,</i>	Civil Eng.
Cole, William Russell,	<i>Des Moines, Ia.,</i>	Law
Coleman, George Albert,	<i>Palo Alto,</i>	Entomology
A. B., Stanford, 1903.		
Coleman, Jacob,	<i>Palo Alto,</i>	Law
Collom, Roy Edward,	<i>Denver, Colo.,</i>	Geology-Mining
Collyer, Norman,	<i>Tacoma, Wash.,</i>	Civil Eng.
Comings, Jennie Alice,	<i>San Francisco,</i>	Chemistry
Conde, Isabel,	<i>San Francisco,</i>	English
Connell, John Harden,	<i>Wellsburg, W. Va.,</i>	Law
A. B., West Virginia Univ., 1901.		
Conover, John Howard,	<i>Orange, N. J.,</i>	Greek
Cook, Gordon Irving,	<i>Palo Alto,</i>	English
A. B., Carleton College (Mo.), 1902.		
Cooley, Arthur Edward,	<i>Cloverdale,</i>	Law
A. B., Stanford, 1903.		
Cooley, Frederic Allen,	<i>Palo Alto,</i>	Geology-Mining
A. B., Stanford, 1892.		
Coolidge, Herbert Francis,	<i>Palo Alto,</i>	Economics Sp.
Coons, James Watt,	<i>Palo Alto,</i>	Mechan. Eng. Sp.
Cooper, Elizabeth Procter,	<i>San José,</i>	Physiology
A. B., Stanford, 1902.		
Cooper, John Titus,	<i>Los Angeles,</i>	Law
Cooper, William Alpha,	<i>Palo Alto,</i>	German
A. B., Marietta College, 1892; A. M., 1897.		
Coover, John Edgar,	<i>Palo Alto,</i>	Philosophy
A. B., Stanford, 1904.		
Corbet, Sadie,	<i>Menlo Park,</i>	Zoology
Corbin, Alexander Noel, Jr.,	<i>Tekamah, Neb.,</i>	Law Sp.
Cornell, Olive,	<i>Los Gatos,</i>	English
Cortes, Charles Eliseo,	<i>Guadalajara, Mex.,</i>	Civ. Eng.
Cory, Edith Marie,	<i>Fresno,</i>	German
Cottle, Everett Royal,	<i>San José,</i>	Geology and Mining
Cotton, Claudine,	<i>San Francisco,</i>	History
Coulter, Edith Margaret,	<i>Salinas,</i>	German
Courtright, Nellie Brooks,	<i>Aurora, Ill.,</i>	Latin
Coville, Alice Bertha,	<i>Mountain View,</i>	French
Cowdery, Mary Belle,	<i>Pomona,</i>	German
Cowles, Ralph,	<i>St. Johns, Mich.,</i>	Civ. Eng.
Cox, Albert Brooks,	<i>Joplin, Mo.,</i>	Electrical Eng.
Cox, Katherine,	<i>Santa Clara,</i>	History

Cozzens, William Lloyd,	<i>San José,</i>	Geology and Mining
Cramer, Sophia M.,	<i>Palo Alto,</i>	German
A. B., Stanford, 1904.		
Crandall, Berton Woodford,	<i>Palo Alto,</i>	Chemistry
Crandall, Esther,	<i>Palo Alto,</i>	Greek
A. B., Stanford, 1903.		
Crandall, Helen La Baree,	<i>Oakland,</i>	English
Crandall, Roderic,	<i>Palo Alto,</i>	Geology and Mining
Crandell, Ethel Mae,	<i>Redlands,</i>	Latin
Crane, Arthur Garfield,	<i>Fallbrook,</i>	English
Crary, Clarence Stephen,	<i>Stanford University,</i>	Econom.
A. B., Stanford, 1904.		
Cravens, Mary Ruhama,	<i>Sacramento,</i>	Zoology
Crawford, Clarence Harrison,	<i>Union, Or.,</i>	Law
Crawford, William Elmer,	<i>Cupertino,</i>	Chemistry
Cressy, Calvin Joy,	<i>Modesto,</i>	Geology and Mining
Crider, Clay Russell,	<i>San José,</i>	German
Crittenden, Franklin Avery,	<i>Cupertino,</i>	Law
Cromwell, George,	<i>Fallbrook,</i>	Civil Eng.
Crook, J. William,	<i>San José,</i>	Electrical Eng.
Crook, Arthur M.,	<i>San José,</i>	Education
Crosiar, Annie Jane,	<i>Pasadena,</i>	English
Crosier, Mildred Irene,	<i>Santa Ana,</i>	English
Crossman, Walter Allen,	<i>San José,</i>	Chemistry
Crowfoot, Ray Lee,	<i>Paso Robles,</i>	Civil Eng.
Crozer, Laura Esther,	<i>Berkeley,</i>	English
Crumby, Elizabeth Julia,	<i>Redlands,</i>	English
Crutcher, David Ernest,	<i>Palo Alto,</i>	Civil Eng.
Crutcher, William Hamilton,	<i>Palo Alto,</i>	History
Cruttenden, John William,	<i>Quincy, Ill.,</i>	Civil Eng.
Cruzan, Harold Ide,	<i>Palo Alto,</i>	Law
Cunha, Edward Anthony,	<i>Milpitas,</i>	Law
Cunning, Frank Ambrose,	<i>Hollister,</i>	Mechanical Eng.
A. B., Indiana Univ., 1899.		
Cunningham, Peter Bernard,	<i>Ukiah,</i>	Law
Curran, Homer Fellows,	<i>Springfield, Mo.,</i>	Economics
Curran, Pauline Garner,	<i>Los Angeles,</i>	History
Cushman, Freeman Hedge,	<i>Tacoma, Wash.,</i>	Mech. Eng. Sp.
Cutler, Leland Whitman,	<i>Palo Alto,</i>	English
Cutter, Lawrence Edminster,	<i>Mountain View,</i>	Mechan. Eng.
Cutter, Mary Adeline,	<i>Oakland,</i>	Economics Sp.

Cutting, James Arthur,	<i>Palo Alto,</i>	English
Cutting, Theodore Abijah,	<i>Palo Alto,</i>	English
Daily, Harry Parker,	<i>Ft. Smith, Ark.,</i>	History
Dake, Daisy Gertrude,	<i>Pasadena,</i>	German
Darby, Helen Louise,	<i>Morgan Park, Ill.,</i>	Physics
Darling, Lewis Andrew,	<i>Carrollton, Ky.,</i>	Mechan. Eng.
B. M. E., Kentucky State College, 1900.		
Davenport, Nina Claire,	<i>San José,</i>	Drawing
Davidson, John Pirnie,	<i>Los Angeles,</i>	Geology
Davis, Dwight M.,	<i>Kansas City, Mo.,</i>	Law
Davis, Louise Van Dant,	<i>Stanford University,</i>	English
Davis, Sydney Leander,	<i>Pensacola, Fla.,</i>	Romanic Lang.
Davis, Warren A.,	<i>Crockett,</i>	Electrical Eng.
Dawley, William Jay,	<i>Cleveland, Ohio,</i>	Latin
Dawson, Percy Beach,	<i>Palo Alto,</i>	Mechan. Eng. Sp.
Dearing, Harry Lummis,	<i>Santa Ana,</i>	Law Sp.
Dehy, James Gordon,	<i>Bishop,</i>	Civil Eng. Sp.
Derby, Julia,	<i>Los Angeles,</i>	French
Derby, William Flagg,	<i>Napa,</i>	Zoology
Detrick, Charles Reighley,	<i>San Francisco,</i>	Law
A. B., Harvard Univ., 1891.		
Devendorf, Ada,	<i>Ocean Park,</i>	Botany
DeWitt, Marcus Elmo,	<i>Tulare,</i>	English
Dey, Benjamin Clifford,	<i>Santa Cruz,</i>	Law
Dibble, Arthur McQueen,	<i>Portland, Ore.,</i>	Law
Dille, Ione Candace,	<i>Cincinnati, Ohio,</i>	Latin
Dillon, Isaac,	<i>San Francisco,</i>	Physiology
Dillon, James Root,	<i>San Francisco,</i>	Physiology
Dillon, Josephine,	<i>Long Beach,</i>	French
Dinwoody, Leroy G.,	<i>Salt Lake City, Utah,</i>	Econ.
*Dittmar, Carl Frederic,	<i>Redding,</i>	Law
A. B., Stanford, 1903.		
Doane, Edgar Willis,	<i>Palo Alto,</i>	Civil Eng.
B. S., Kansas State Agricultural College, 1901.		
Doane, William Charles,	<i>Pasadena,</i>	Zoology
Dodd, Robert William,	<i>San Francisco,</i>	Chemistry
A. B., Stanford, 1903.		
Dole, George Ethelbert,	<i>Riverside,</i>	Economics
Dole, Norman Eliot,	<i>Riverside,</i>	Chemistry
Dole, Wilfred Heinrich,	<i>Riverside,</i>	Physiology
Donaldson, Joseph Everett,	<i>Hamilton, Mo.,</i>	Latin

* Work completed summer, 1903.

Dotten, John Knowles,	<i>Riverside,</i>	English
Dougherty, Robert,	<i>San Francisco,</i>	Electrical Eng.
Downing, Mary,	<i>Palo Alto,</i>	Romanic Lang.
Downing, Samuel Robert,	<i>Arcata,</i>	Physiology
Doyle, Frances Michal,	<i>Menlo Park,</i>	Physiology <i>Sp.</i>
Drake, Bertie Elizabeth,	<i>Tacoma, Wash.,</i>	Zoology
Drake, Wilbur Arthur,	<i>Los Angeles,</i>	Latin
Drees, Franklin Henry,	<i>Carroll, Ia.,</i>	Civil Eng.
Drinkwater, Mary Lucy,	<i>Corona,</i>	English
Dryer, George William,	<i>Santa Ana,</i>	Law

A. B., Stanford, 1902.

Dudgeon, William Thomas,	<i>Kyle, Tex.,</i>	English <i>Sp.</i>
Dudley, Ernest Griswold,	<i>Stanford University,</i>	Chemistry
Duncan, Charles L.,	<i>Porterville,</i>	English
Duncan, Louise,	<i>Porterville,</i>	English
Dunlap, Anna Laura,	<i>Holland Patent, N. Y.,</i>	Latin

A. B., Stanford, 1904.

Dunn, Amy Louise,	<i>Eugene, Ore.,</i>	Latin
Dunn, Nora Kathleen,	<i>Los Angeles,</i>	English
Dunn, Walter Francis,	<i>Duarte,</i>	Law
Dunne, James Leonard,	<i>Benton, Mont.,</i>	Civil Eng.
Durbrow, Ross Lewis,	<i>San Francisco,</i>	Mech. Eng. <i>Sp.</i>
Duval, Ernest Hawley,	<i>Saticoy,</i>	History
Earle, Homer Price,	<i>Pasadena,</i>	Romanic Lang.
Eaton, Clarence Burwell,	<i>San José,</i>	Mechanical Eng.
Eby, Clarissa,	<i>Oakland,</i>	Economics <i>Sp.</i>
Eckstein, Pearle Marie,	<i>Norwalk,</i>	English
Edgerly, Edith Folsom,	<i>Garden Grove,</i>	History
Edson, Mark Samuel,	<i>Stowe, Vt.,</i>	Civil Eng.
Edwards, Carolyn Z.,	<i>San José,</i>	English
Edwards, Gordon William,	<i>San Francisco,</i>	Electrical Eng.
Edwards, LeRoy Mallory,	<i>Palo Alto,</i>	Law
Edwards, Paul Carroll,	<i>Indianapolis, Ind.,</i>	English
Eisenman, William Hunt,	<i>Jamestown, Ohio,</i>	Law

Ph. B., Kenyon College, 1903.

Ellenwood, Frank Oakes,	<i>Palo Alto,</i>	Mechanical Eng.
Elliott, Charlotte,	<i>Del Rapids, S. D.,</i>	Zoology
Ellis, Annie Alexandra,	<i>Pacific Grove,</i>	Chemistry
Ellis, Clarence Edgar,	<i>San Francisco,</i>	Chemistry
Elwell, Cyril Frank,	<i>Sydney, Australia,</i>	Elec. Eng.
Elwood, Roby Theresa,	<i>Alhambra,</i>	English

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Ely, Helen Heath,	<i>Palo Alto,</i>	Latin
A. B., Stanford, 1903.		
Emerson, Ralph Damon,	<i>Hoquiam, Wash.,</i>	Chemistry
Engle, Alfred J.,	<i>Philadelphia, Pa.,</i>	English <i>Sp.</i>
Estes, Fred Raymond,	<i>San José,</i>	Law
Evans, Margaret Alice,	<i>Butte, Mont.,</i>	German
Evans, Mary Elizabeth,	<i>Reno, Nev.,</i>	Physiology
A. B., Nevada State Univ., 1902.		
Evans, Walter Hubert,	<i>Salt Lake City, Utah,</i>	Elec. Eng.
Everson, Fred Leroy,	<i>Stockton,</i>	Law
Ewald, Fred August,	<i>Scottville, Mich.,</i>	Law <i>Sp.</i>
Fair, Etta Pearl,	<i>Ottumwa, Ia.,</i>	English
Fairfield, Edith May,	<i>Dunkirk, Ind.,</i>	English
Falk, Laura Bell,	<i>Eureka,</i>	German
Farnsworth, Louis Dugett,	<i>Salt Lake City, Utah,</i>	Elec. Eng.
Farris, Herbert Spencer,	<i>San Francisco,</i>	Law
Favre, Eugene Barkley,	<i>Palo Alto,</i>	Law
Fay, Arline Roque,	<i>San Diego,</i>	History
A. B., Stanford, 1904.		
Fay, James Archer,	<i>Anaheim,</i>	Geology
Fay, William Stiles,	<i>San Diego,</i>	Civil Eng.
Featherstone, Gertrude Drusilla,	<i>Palo Alto,</i>	Latin
Fellows, Frederick William,	<i>Los Angeles,</i>	History
Ferguson, Carl Augustus,	<i>San Bernardino,</i>	Electric. Eng.
Ferguson, L. Perry,	<i>San Diego,</i>	Electrical Eng.
Ferguson, Roy Noble,	<i>San Bernardino,</i>	Mining Eng.
*Fernald, Reginald Goodwin,	<i>Santa Barbara,</i>	Law
A. B., Stanford, 1903.		
Fifield, Ethel May,	<i>San Francisco,</i>	English
Finney, Clara Eugenia,	<i>Modesto,</i>	Mathematics
Firebaugh, Charles Ludwig,	<i>Palo Alto,</i>	Law
Fisher, Frank Alma,	<i>Salt Lake City, Utah,</i>	Law
Fisher, Walter Kenrick,	<i>Palo Alto,</i>	Zoology
A. B., Stanford, 1901; A. M., 1903.		
Fitch, Harold,	<i>San Francisco,</i>	English
Fitch, Mary Edith,	<i>San Francisco,</i>	History <i>Sp.</i>
Fitzgerald, Charles Arthur V.,	<i>Georgetown,</i>	Electrical Eng.
Fitzgerald, Ellen Winifred,	<i>Gilroy,</i>	Latin
Fitzgerald, Fred Finley,	<i>Clarion, Pa.,</i>	Chemistry
Fitzgerald, Katherine Gertrude,	<i>Gilroy,</i>	Latin

* Work completed summer, 1903.

Flanders, Edward Aiken,	<i>Glencoe, Ill.,</i>	Civil Eng.
Fleming, Louise Kate,	<i>San José,</i>	English
Fleming, Ralph Douglas,	<i>Palo Alto,</i>	Economics <i>Sp.</i>
Flentjen, Auguste E.,	<i>Los Angeles,</i>	German
Fletcher, Arthur Ransford,	<i>Palo Alto,</i>	English
Folsom, David Morrill,	<i>White Sulphur Springs, Mont.,</i>	Geology and Mining

A. B., Stanford, 1903.

Forbes, Walter Dale,	<i>Ogden, Utah,</i>	Chem. Eng. <i>Sp.</i>
Fosdick, Bertha May,	<i>Palo Alto,</i>	Mathematics <i>Sp.</i>
Foss, Martha Archibald,	<i>Palo Alto,</i>	Mathematics
Foster, Ethel Hilda,	<i>Palo Alto,</i>	German
Foster, George Adams,	<i>Palo Alto,</i>	German
Foster, John Moody,	<i>Palo Alto,</i>	Chemistry <i>Sp.</i>
Foster, Mary Christine,	<i>Coronado,</i>	History
Foster, Mabel Gertrude,	<i>Palo Alto,</i>	Latin
Fountain, Robert,	<i>Banning,</i>	Law
Fowle, Carolyn Curtis,	<i>San Francisco,</i>	History
Fowler, Frederick Hall,	<i>Palo Alto,</i>	Civil Eng.
Fowler, Ruth,	<i>Santa Rosa,</i>	Mathematics
Fowler, William Henry Begbie,	<i>San Francisco,</i>	Economics <i>Sp.</i>
Foy, Florence,	<i>Los Angeles,</i>	Economics
Franklin, George Glasier,	<i>Anaheim,</i>	Geol. and Mining
Fraser, Annebell,	<i>National City,</i>	German
Fraser, Frederick John,	<i>Rye Beach, N. H.,</i>	Law
Frederickson, Albion Fabian,	<i>Templeton,</i>	Electrical Eng.
Freeman, Anthony C.,	<i>Chicago, Ill.,</i>	Physiology
Freeman, Eldora,	<i>Cupertino,</i>	Latin
French, Rebecca Beatrice,	<i>San José,</i>	History
French, Henry Nelson,	<i>San José,</i>	Law
Frink, Lester Daniel,	<i>Mountain View,</i>	Geol.-Mining
Frisselle, Samuel Parker,	<i>Fresno,</i>	Economics

A. B., Stanford, 1903.

Fujii, Juroku,	<i>Palo Alto,</i>	Chemistry
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A. B., Stanford, 1904.

Fukukita, Yasunosuke,	<i>Tsu, Japan,</i>	English
Fulkerson, Fannie Craig,	<i>Tazewell, Tenn.,</i>	English
Fullaway, David Timmins,	<i>Palo Alto,</i>	Physiology <i>Sp.</i>
Fuller, Raymond August,	<i>Palo Alto,</i>	Geol. and Mining
Fulton, Charles Guthrie,	<i>Palo Alto,</i>	Electrical Eng.
Funke, Philip K.,	<i>Denver, Colo.,</i>	Law
Gaither, Robert Hughes,	<i>New York, N. Y.,</i>	Mech. Eng. <i>Sp.</i>
Galbraith, William James, Jr.,	<i>Cananea, Mex.,</i>	Law

Galloway, Frances Haney,	<i>Weiser, Idaho,</i>	Education <i>Sp.</i>
Gamble, George Edwin,	<i>Palo Alto,</i>	Chemistry
Gamble, James Lander,	<i>Palo Alto,</i>	Physiology
Gardner, Dian Rathbun,	<i>Orange,</i>	Law
Gardner, Frances Rebekah,	<i>Pomona,</i>	English
Gardner, Reginald Henri,	<i>Orange,</i>	Civil Eng.
Gardner, Vera Placida,	<i>Orange,</i>	Chemistry
Garfias, Valentine Richard,	<i>Mexico City, Mex.,</i>	Civil Eng.
Garlinghouse, Lois Edna,	<i>Modesto,</i>	Latin
Garratt, Graham Leslie,	<i>London, Eng.,</i>	Electrical Eng.
Garratt, Ronald Vivian,	<i>London, Eng.,</i>	French
Garrett, Delmar Wiant,	<i>San Francisco,</i>	Mech. Eng. <i>Sp.</i>
Gartzmann, Pauline,	<i>Long Beach,</i>	English
Gay, Harold Sinclair,	<i>Redlands,</i>	Geology
Geer, Charles Lester,	<i>Campbell,</i>	Law
Gibbons, Oscar,	<i>Paso Robles,</i>	Law
Gibbs, George Snow,	<i>Salt Lake City, Utah,</i>	Psych.
A. B., Univ. of Utah, 1902.		
Gibson, Cora Helen,	<i>Lakeport,</i>	English
A. B., Stanford, 1904.		
Gilbert, Grace McMillan,	<i>Santa Barbara,</i>	History
Gilbert, Ruth Hughes,	<i>Palo Alto,</i>	English
Giles, James Sweeney,	<i>Oakland,</i>	Law
Giles, Mabel F.,	<i>San José,</i>	Botany
B. L., Smith College, 1896.		
Gittings, Charles,	<i>Pueblo, Colo.</i>	Mechan. Eng.
Gleim, Edgar Miller,	<i>Portland, Ore.,</i>	Geol.-Mining
Goddard, Charles Baldwin,	<i>Conneaut, Ohio,</i>	English
A. B., Stanford, 1904.		
Godfrey, Olive Corinthia,	<i>Vacaville,</i>	English
Gonsalves, Louis,	<i>Mendocino,</i>	Law
Good, Sydney Vincent,	<i>Los Angeles,</i>	History
Goodall, Charles F.,	<i>Oakland,</i>	Civil Eng.
Goodspeed, Lillian Mildred,	<i>Palo Alto,</i>	Latin
Gordon, Alfred W.,	<i>Pasadena,</i>	Mechanical Eng.
Gordon, John Turbenville, Jr.,	<i>Azusa,</i>	Law
Gordon, Mabel Adelaide,	<i>Pasadena,</i>	English
Gossett, Evangeline Singleton,	<i>Palo Alto,</i>	English
Goudy, Alfred Holbrook,	<i>Denver, Colo.,</i>	Electrical Eng.
Goudy, Franklin Burris,	<i>Denver, Colo.,</i>	Geology-Mining
Gould, Marie Augusta,	<i>Pasadena,</i>	Drawing
Grace, Florence Mary,	<i>Rivera,</i>	Mathematics

Graham, Nina Jean,	<i>Eureka,</i>	English
Grant, Maud Waterhouse,	<i>Stanford University,</i>	Law <i>Sp.</i>
Grau, Miriam Stedman,	<i>San Francisco,</i>	Physiology
Graves, Ethel Winona,	<i>Los Angeles,</i>	Chemistry
A. B., Stanford, 1903.		
Graves, Joseph Hiram,	<i>San José,</i>	Philosophy
Gray, Eunice Thompson,	<i>San José,</i>	English
A. B., Stanford, 1901.		
Gray, Walter Kempster,	<i>Milwaukee, Wis.,</i>	Physiology
A. B., Stanford, 1901.		
Green, Eldridge,	<i>San Mateo,</i>	Electrical Eng.
Green, Lucius Payton,	<i>Mountain View,</i>	Law
Greer, Dane M.,	<i>Ft. Smith, Ark.,</i>	Chemistry
Gregg, Mary Elizabeth,	<i>Redding,</i>	English
Gregg, Ruth Bailey,	<i>Palo Alto,</i>	Mathematics
Gridley, Kate Louise,	<i>Los Angeles,</i>	Latin
Griffin, Allan Tristram,	<i>San Francisco,</i>	Geol.-Mining
Grigsby, Harry C.,	<i>Tulare,</i>	Geology
Grimm, Lewis L.,	<i>Washington, Pa.,</i>	English
Grinnell, Fordyce, Jr.,	<i>Pasadena,</i>	Entomology
Griswold, Percy McChesney,	<i>San Francisco,</i>	Electrical Eng.
Grow, Bernard Lyle,	<i>Fullerton,</i>	Electrical Eng. <i>Sp.</i>
Gude, Julie Augusta,	<i>Los Angeles,</i>	English
Guidery, Myrtle,	<i>Oroville,</i>	Latin
A. B., Stanford, 1904.		
Guild, Almira Hall,	<i>Palo Alto,</i>	English <i>Sp.</i>
Guild, Bertha,	<i>Palo Alto,</i>	Physiology <i>Sp.</i>
Gulick, Ray Alexander,	<i>Los Angeles,</i>	Electrical Eng.
Gundrum, Eloise Fretageot,	<i>Riverside,</i>	History
Guthrie, William Smith,	<i>Palo Alto,</i>	Electrical Eng.
Guyer, Cloyd George,	<i>Altadena,</i>	Geology-Mining
Haas, Caroline,	<i>San José,</i>	English
Hadley, Clyde Musgrave,	<i>Bellingham, Wn.,</i>	Law
Hale, Alice Staniford,	<i>Redlands,</i>	History
A. B., Stanford, 1904.		
Hale, Edythe Mae,	<i>Salt Lake City, Utah,</i>	English
Hall, Anna Gertrude,	<i>Santa Clara,</i>	English
Hall, Bessie D. Lena,	<i>Spokane, Wash.,</i>	German <i>Sp.</i>
Hall, Ethel Blanche,	<i>Sacramento,</i>	French
Hall, Etta Benedict,	<i>San José,</i>	English
Hall, Hubert Harry,	<i>San José,</i>	Civil Eng.
Hall, Robert Gilbert,	<i>Whatcom, Wash.</i>	Mech. Eng.

Halley, Albert Smith,	<i>Rapid City, S. D.,</i>	Geol.-Mining
Halsey, Edna Gerardine,	<i>Santa Cruz,</i>	Latin
Halsey, Mildred,	<i>Redwood City,</i>	German
Hamilton, Henry Liberty,	<i>Palo Alto,</i>	Geology
Hamilton, Walter Raleigh,	<i>Palo Alto,</i>	Geology-Mining
Hammond, Florence Gertrude,	<i>San José,</i>	English
Hammond, Nellie S. Barnes,	<i>Palo Alto,</i>	Drawing
Hammond, Peter Homer,	<i>Palo Alto,</i>	Latin Sp.
Hampson, Alfred Aubert,	<i>Washington, D. C.,</i>	Law
Hampson, Joseph Hale,	<i>Palo Alto,</i>	Chemistry
Hampton, Alfred Lee,	<i>Grand Junction, Col.,</i>	Elec. Eng.
Hampton, Chilton,	<i>Palo Alto,</i>	Civil Eng.
Hampton, George Washington,	<i>Grand Junction, Col.,</i>	Elec. Eng.
Hannum, Claude Elliott,	<i>Denver, Colo.,</i>	Electrical Eng.
Hanson, J. Wesley,	<i>San José,</i>	Chemistry
Hanson, James William, Jr.,	<i>Alameda,</i>	Electrical Eng.
Harkins, Charles Lorin,	<i>Menlo Park,</i>	Chemistry
A. B., Stanford, 1902.		
Harkins, Mary Santa Barbara,	<i>Menlo Park,</i>	French
A. B., Stanford, 1902.		
Harlan, Orren Arthur,	<i>San José,</i>	Geology Sp.
Harnan, William Lewis,	<i>Butte, Mont.,</i>	Geology
Harrenstein, Frances Cornelia,	<i>San José,</i>	German
Harrington, John Peabody,	<i>Santa Barbara,</i>	German
Harrington, Kate Theresa,	<i>San Bernardino,</i>	English
*Harris, Abe Perry,	<i>San José,</i>	Law
A. B., Stanford, 1903.		
Harris, Blanche,	<i>San Francisco,</i>	English
A. B., Stanford, 1904.		
Harris, Mabel Lena,	<i>Merced,</i>	Latin
Harwick, Alexander Aiken,	<i>Poplar Bluff, Mo.,</i>	Economics
Haslachner, Beatrice Clare,	<i>Oakdale,</i>	History
Hatch, Everett Hamilton,	<i>Napa,</i>	Civil Eng.
Hathaway, Frank Bacon,	<i>Denison, Tex.,</i>	Electrical Eng.
Hathway, Anita Monarch,	<i>San Luis Obispo,</i>	History
Hauverman, Cornelius Duane,	<i>Banning,</i>	Chemistry
Hauverman, Laura Margaret,	<i>Banning,</i>	English
Haver, Samuel Caldwell, Jr.,	<i>Redlands,</i>	Electrical Eng.
Hawkins, Horatio Bates,	<i>San Francisco,</i>	History
Haws, Murray Willman,	<i>San Bernardino,</i>	Mech. Eng.
Hayden, Sara Davis,	<i>Palo Alto,</i>	French

* Work completed summer, 1903.

Hayes, Alice Sedonie,	<i>Denver, Colo.,</i>	German
Hayes, Edward A.,	<i>El Monte,</i>	Civil Eng. <i>Sp.</i>
Haynes, Walter,	<i>Portland, Ore.,</i>	Elec. Eng. <i>Sp.</i>
Hayward, Clinton Dewitt,	<i>San José,</i>	English <i>Sp.</i>
Hayward, Emma,	<i>San Carlos,</i>	Economics
Hayward, Jeannette May,	<i>Santa Barbara,</i>	Latin
Heffron, Harold J.,	<i>Los Angeles,</i>	Civil Eng.
Heinly, Webster Guy,	<i>Creston, Ia.,</i>	Law
B. S., Knox College, 1901.		
Hellwig, Herbert Frederick,	<i>San Francisco,</i>	Geol.-Mining
Henderson, Charles William,	<i>Portland, Ore.,</i>	Geol.-Mining
Henderson, Harry Finley,	<i>Los Angeles,</i>	History
Henley, Arthur Sidney,	<i>Palo Alto,</i>	Geology-Mining
Henley, Edward Vernon,	<i>Mayfield,</i>	Law
Henley, Lloyd A.,	<i>Round Valley,</i>	Electrical Eng.
Henley, William Wheeler,	<i>Mayfield,</i>	Mechanical Eng.
Henriksen, Martin Emil,	<i>San Francisco,</i>	Zoology
Henry, Gertrude May,	<i>Chamberlain, S. D.,</i>	English
Henzel, Bertha,	<i>San Francisco,</i>	German
Henzel, Ida Bell,	<i>San Francisco,</i>	Latin
Herbert, Elmer Harlan,	<i>San José,</i>	Geology and Mining
Herold, Stanley Carrollton,	<i>San José,</i>	Electrical Eng.
Herre, Albert Christian,	<i>Mayfield,</i>	Botany
A. B., Stanford, 1904.		
Herre, Clara,	<i>Mayfield,</i>	Romanic Lang.
Herron, George Merrick,	<i>Napa,</i>	Civil Eng.
Herron, Josephine E.,	<i>Elsinore,</i>	Drawing
Hess, Eva Roseberry,	<i>Pope Valley,</i>	Drawing
Hetherington, Hazel Camilla,	<i>Stanford University,</i>	Chem.
Heunisch, Albert Gustave,	<i>San Francisco,</i>	Economics
Hewlett, George,	<i>San Francisco,</i>	Law
A. B., Stanford, 1903.		
Higgins, Margaret May,	<i>Astoria, Ore.,</i>	English
Highstone, Lawrence Scigfred,	<i>Los Angeles,</i>	Law <i>Sp.</i>
Hill, Bessie Florence,	<i>Portland, Ore.,</i>	German
Hill, Frank Lloyd,	<i>Palo Alto,</i>	Law
Hoag, Bessie Bell,	<i>Palo Alto,</i>	Latin
Hoag, Nellie Graham,	<i>Palo Alto,</i>	Latin
Hoagland, Dennis Robert,	<i>Denver, Colo.,</i>	Chemistry
Hodgdon, Emma Florette,	<i>Sacramento,</i>	French
Hodge, George Ashmun,	<i>San Diego,</i>	Electrical Eng.

*Hodge, Mary Ashmun,	<i>San Diego,</i>	Physiology
A. B., Stanford, 1903.		
Hogue, Helen May,	<i>Albany, Ore.,</i>	German
A. B., Stanford, 1901.		
Hohl, Leonard Louis,	<i>Oroville,</i>	Civil Eng.
Holbrook, Louise A.,	<i>Manchester,</i>	History
A. B., Stanford, 1904.		
Holloway, James G.,	<i>Kansas City, Mo.,</i>	German
Holly, Jesse Blaine,	<i>Dixon,</i>	Civil Eng.
Holly, Theodora H.,	<i>Palo Alto,</i>	Drawing
A. B., Stanford, 1904.		
Holman, Edna Alice,	<i>San Antonio, Tex.,</i>	English Sp.
Holman, Fred Sanderson,	<i>Willits,</i>	English
Holman, Ida Burnam,	<i>San Antonio, Tex.,</i>	English
Holman, John Daniel,	<i>Corona,</i>	Civil Eng.
Holman, Mary Persis,	<i>Palo Alto,</i>	Education
Holman, Richard Morris,	<i>Palo Alto,</i>	Botany
Holmes, Lallah Blair,	<i>Santa Monica,</i>	English
Holmquist, Hjalmar Edwin,	<i>Redwood City,</i>	Law
Hook, Chestina Alma,	<i>Perris,</i>	Romanic Lang.
Hooper, Arthur Willard,	<i>San Francisco,</i>	Economics
Hoops, Ethel Belle,	<i>Stanford University,</i>	French
Hoose, James Harmon, Jr.,	<i>Pasadena,</i>	Mechanical Eng.
Hoover, Grace Amelia,	<i>Palo Alto,</i>	Drawing
Hope, Edward William,	<i>Shaftsbury, Eng.,</i>	Greek
A. B., Univ. of Pennsylvania, 1902; A. M., Stanford, 1903.		
Hopkins, Ralph Allen,	<i>Pasadena,</i>	Electrical Eng.
Hopper, Charles Bates,	<i>Los Angeles,</i>	Law
Hopper, Leona May,	<i>Palo Alto,</i>	English
A. B., Stanford, 1903.		
Hopper, Shirley Marie,	<i>Palo Alto,</i>	German
Horan, James Darrell,	<i>Alameda,</i>	Law
Hori, Ayao,	<i>Vallejo,</i>	Economics
Horn, Pearl Myrtle,	<i>Bakersfield,</i>	Mathematics
Hornby, Raymond,	<i>Redlands,</i>	Electrical Eng.
Horowitz, Elmor Eugene,	<i>San Bernardino,</i>	Chemistry
Horr, Marriion Augusta,	<i>Santa Clara,</i>	History
A. B., Stanford, 1903.		
Howard, Everard Ray,	<i>Los Angeles,</i>	Law Sp.
Howard, Herbert C.,	<i>Los Angeles,</i>	Civil Eng.
Howe, George Washington,	<i>Palo Alto,</i>	Law Sp.

* Work completed summer, 1903.

Howe, Reuben Fenton,	<i>Stanford University,</i>	Latin
A. B., Stanford, 1904.		
Hoxsie, George Gordon,	<i>Portland, Ore.,</i>	Chemistry <i>Sp.</i>
Hudson, Robert Allan,	<i>Berryessa,</i>	Mechanical Eng.
Hudson, Robert Henry,	<i>Watsonville,</i>	Economics
Hudson, Robert Spencer,	<i>Tacoma, Wash.,</i>	Economics
Hughston, William Job,	<i>Melbourne, Australia,</i>	Educa.
A. B., Univ. of Melbourne, 1893.		
Huiskamp, Hazel,	<i>Montecito,</i>	German
Hull, Delia Mae,	<i>Palo Alto,</i>	Latin
Hummel, Redolpho Braun,	<i>Stanford University,</i>	English
Humphrey, Alice Louise,	<i>San José,</i>	French
Humphrey, Harry Baker,	<i>Granite Falls, Minn.,</i>	Botany
B. S., Univ. of Minnesota, 1899.		
Humphrey, Olive Agatha Mealey,	<i>Granite Falls, Minn.,</i>	Botany
B. S., Univ. of Minnesota, 1899.		
Hunt, Duke,	<i>Tacoma, Wash.,</i>	Mechan. Eng.
Hunter, Thomas Benton, Jr.,	<i>San Francisco,</i>	Civil Eng.
Huntsberger, Glen E.,	<i>Los Angeles,</i>	Latin
Hurlburt, Edward Harwood,	<i>Redwood City,</i>	Law
Huskey, H. Walter,	<i>Palo Alto,</i>	Law
Hyatt, Inez,	<i>Riverside,</i>	Mathematics
Hyatt, Shirley,	<i>Riverside,</i>	Physics
Hyde, Arthur Edward,	<i>Philadelphia, Pa.,</i>	Economics
Hyde, Clarence Elmer,	<i>Cupertino,</i>	Physiology
Hyde, Mark Powell,	<i>Grand Rapids, Mich.,</i>	Elec. Eng.
Hyde, Otis Edwin,	<i>Cupertino,</i>	Drawing
Ichihashi, Yaniato,	<i>San Francisco,</i>	Economics
Inahara, Katsuji,	<i>Tokio, Japan,</i>	Economics
Ingalls, Clayton E.,	<i>San José,</i>	Electrical Eng.
Iriya, Matthew Etsutaro,	<i>Stanford University,</i>	Econom.
Irwin, Arthur May,	<i>Franklin, Pa.,</i>	English
Ivory, Royal Harry,	<i>Pittsburg, Pa.,</i>	English
Jack, Harry McGavran,	<i>Los Angeles,</i>	Geology
Jackson, Edward Royle,	<i>Redding,</i>	Law
Jacobs, George Clarence,	<i>Merced,</i>	Civil Eng.
James, Carlton Cheney,	<i>Los Angeles,</i>	Chemistry
James, Grace Louise,	<i>Santa Monica,</i>	History
Jarman, Edith Louise,	<i>San José,</i>	History
Jeffers, Delphus Leaton,	<i>Palo Alto,</i>	Education
Jenkins, Hubert Oliver,	<i>Stanford University,</i>	Zoology
Jewett, Stanley Guion,	<i>Marysville,</i>	English

Johnson, Albert O.,	<i>Portland, Ore.,</i>	Civil Eng. <i>Sp.</i>
Johnson, Henry Roland,	<i>Stanford University,</i>	Geology
Johnson, Jennef,	<i>Redlands,</i>	English
Johnson, William Samuel,	<i>Lundy,</i>	Electrical Eng. <i>Sp.</i>
Johnson, Ila Lee,	<i>Santa Clara,</i>	English
Johnson, John Leslie,	<i>Redwood City,</i>	Law
Jellyman, Alice,	<i>Cupertino,</i>	Spanish
Jones, Bertha Emma,	<i>Los Angeles,</i>	English
Jones, Edgar Axton,	<i>Eureka,</i>	Law
Jones, Edna Catherine,	<i>Elmhurst,</i>	English
Jones, Guy Pierpont,	<i>Palo Alto,</i>	English
Jones, Herbert Coffin,	<i>College Park,</i>	Law
A. B., Stanford, 1902.		
Jones, Robert Alton,	<i>Burlington, Vt.,</i>	Chemistry
Jones, Warren Worth,	<i>Mayfield,</i>	Mathematics
B. S., Purdue Univ., 1896; A. B., Stanford, 1903.		
Jordan, Elmer Eaton,	<i>Napa,</i>	Civil Eng.
Jordan, Harold Bowen,	<i>Stanford University,</i>	Geol.-Min.
Jordan, Samuel Tilden,	<i>Redlands,</i>	History
Jorgensen, Henry Garfield,	<i>Palo Alto,</i>	Law
Josephson, Julien,	<i>San Francisco,</i>	Economics
Judd, Florence Belle,	<i>Los Angeles,</i>	English
Kawai, Taiyi,	<i>San Francisco,</i>	Economics
Kawara, Masaki,	<i>San Francisco,</i>	Electrical Eng.
Kearne, Arthur Lindsay,	<i>Santa Barbara,</i>	Law
Keiser, Emelie Caroline,	<i>San José,</i>	Physiology
Kelly, Leigh,	<i>Ft. Smith, Ark.,</i>	Civil Eng.
Kellogg, Roy Seldon,	<i>Pasadena,</i>	Chemistry
Kelly, Edith L.,	<i>Redwood,</i>	German
Kelly, Henry Clay,	<i>San José,</i>	Law
Kelly, Walter Poundstone,	<i>Los Angeles,</i>	Geol.-Mining
Kemp, Belle,	<i>Denver, Colo.,</i>	Drawing
Kennedy, James Derwent,	<i>Honolulu, H. I.,</i>	Economics
Kennedy, Karl Forsythe,	<i>San José,</i>	Law
Kerr, Frances Lois,	<i>Glendora,</i>	English
Kimball, Alice Windsor,	<i>Stanford University,</i>	English
Kimball, Letizia Moulton,	<i>Eureka,</i>	History
Kimball, Ruth Laird,	<i>Stanford University,</i>	English
Kimble, Ruby,	<i>Los Angeles,</i>	History
Kimura, Tokuzo,	<i>Sendai, Japan,</i>	Zoology
Nogakushi, Sapporo Agricultural College, 1901.		
King, Frances Shulze,	<i>Banning,</i>	English

King, Helen Garfield,	<i>Ocean Park,</i>	French
King, Marguerite Stuart,	<i>Banning,</i>	English
King, Preston Wallace,	<i>San Luis Obispo,</i>	Mech. Eng.
Kinley, Fielden,	<i>Santa Rosa,</i>	Electrical Eng.
Kinney, Enid,	<i>San José,</i>	Drawing
Kinney, Mary Ettie,	<i>San José,</i>	Physiology
Kip, Kathryn Romer,	<i>San Francisco,</i>	English
Kitching, Frank A.,	<i>Redlands,</i>	Civil Eng.
Klaine, Marie Ludavine,	<i>Santa Clara,</i>	German
Knapp, Gertrude,	<i>Palo Alto,</i>	Zoology
Knapp, James Edmund,	<i>Palo Alto,</i>	Chemistry
*Knepper, Earl H.,	<i>Los Angeles,</i>	Geology

A. B., Stanford, 1903.

Kneisley, George Wallace,	<i>Guthrie, Okla.,</i>	Civil Eng. Sp.
Knight, Robert Bruce,	<i>Alameda,</i>	Law
Knowles, Antoinette,	<i>Santa Clara,</i>	History
Knupp, Guy,	<i>Porterville,</i>	Law
Kottinger, Lawrence,	<i>San José,</i>	Law Sp.
Kuhn, Harold Phillipp,	<i>Kansas City, Mo.,</i>	Physiology
Lacey, Rowland Sherman,	<i>San Diego,</i>	English
Lachmund, Ralph Henry,	<i>Clinton, Ia.,</i>	Law
Ladd, LeRoy Austin,	<i>West Hartford, Conn.,</i>	Law
Lamb, Edwin Gifford,	<i>Los Gatos,</i>	Greek

A. B., Stanford, 1904.

Lambert, Elamae,	<i>Woodland,</i>	English
Lamborn, Bertha Taylor,	<i>Palo Alto,</i>	Latin
Lamson, Helen,	<i>Portland, Ore.,</i>	English
Lanagan, William Henry,	<i>Denver, Colo.,</i>	Geol.-Mining
Lane, Fulton,	<i>Seattle, Wash.,</i>	Geol.-Mining
Lanius, Helen,	<i>Louisville, Ky.,</i>	English
Lanktree, Winifred Elinore,	<i>Palo Alto,</i>	German
Lathrop, Clara M.,	<i>Worcester, Mass.,</i>	Economics
Laumeister, Clarence F.,	<i>San Francisco,</i>	Law
Lavayea, Grace White,	<i>Ocean Park,</i>	Latin

A. B., Univ. of Minnesota, 1903.

Lawry, George Vance,	<i>Redding,</i>	Law Sp.
Lee, Mary Thompson,	<i>San José,</i>	History
Leib, Frank Allen,	<i>San José,</i>	Law
Leib, Roy Chilton,	<i>San José,</i>	Law

A. B., Stanford, 1902.

* Work completed summer, 1903.

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Leis, Zoe,	Lawrence, Kans.,	French
*Lemons, Effie,	Palo Alto,	English Philology
A. B., Indiana Univ., 1889; A. M., Stanford, 1903.		
Leonard, John,	Campbell,	Law
Lessey, Beatrice,	Berkeley,	French
Lett, Andrew Hilliard,	Riverside,	Geology
Levis, Reta Laura,	Visalia,	German
Levy, Edmond L.,	San Mateo,	Geology-Mining
Levy, Leon Gambetta,	San Francisco,	German
Lewers, Alice Arnold,	Stanford University,	English
Lewis, Azro Nathaniel, Jr.,	Alameda,	Law
Lewis, Charles Lux,	Alameda,	Law
Lewis, DeLancey,	San José,	Law
Lewis, Howard Milton,	Palo Alto,	Law
Lewis, Robert Strong,	Palo Alto,	Geology and Mining
Libbin, Thomas,	Palo Alto,	History
Lidders, Alexander Henry,	Palo Alto,	Electrical Eng. Sp.
Lipscombe, Maud May,	Saratoga,	Latin
Litt, Harry James,	Portland, Ore.,	Civil Eng.
Lloyd, Edwin Arthur Rowland,	Mason City, Ia.,	Chemistry
Lloyd, Ethel Grace,	Mason City, Ia.,	Roman. Lang.
Locklin, Curtis Byron,	Nevada City,	Education
B. S., Univ. of California, 1901.		
Lockwood, Lot Dean,	Forest Hill,	Law Sp.
Long, Burton Earle,	Covina,	Chemistry
Long, Royce Reed,	Stanford Univ.,	Physiol. Sp.
Lord, Charlotte Mable,	Palo Alto,	History
A. B., Stanford, 1902.		
Lousley, Oswald Swinney,	Santa Barbara,	Physiology
Lovell, Hugh Farley,	Campbell,	History
Lowe, Chee Soo,	San Francisco,	Geol.-Mining
Lübbe, William Theodore	Huston, Victoria, B. C.,	Civil Eng.
Luce, Edgar Augustine,	San Diego,	Law
Lull, George, Jr.,	Cambria,	Law
de Luna, Mercedes Maria,	Los Angeles,	French Sp.
Lutgerding, George H.,	Phoenix, Ariz.,	Economics
Lutz, Ralph Haswell,	Port Angeles, Wash.,	Law
Lyman, Chester Laidlaw,	Butte, Mont.,	Law
Lyman, Edward Dean,	Reno, Nev.,	History
Lyman, George Dunlap,	Reno, Nev.,	Physiology

* Work completed summer, 1903.

Lyman, Georgina,	<i>Ft. Smith, Ark.,</i>	English
Lyman, Margaret Elizabeth,	<i>Yuba City,</i>	English
Lynn, Anita Conway,	<i>Palo Alto,</i>	German
Lynn, Mabel,	<i>San José,</i>	English
McBride, Nellie J.,	<i>Bellingham, Wash.,</i>	English
McCargar, Maude Gurnsey,	<i>Salt Lake City, Utah,</i>	Chem.
McCaslin, Harvey,	<i>Palo Alto,</i>	Law
B. S., Kansas State Agr. Coll., 1901.		
McCaughern, John Casey,	<i>Stanford University,</i>	Econom.
McChesney, Horace B.,	<i>Denver, Colo.,</i>	Civil Eng. <i>Sp.</i>
McChrystal, Marcus Arthur,	<i>Salt Lake City, Utah,</i>	Geology and Mining
McClellan, Jessie Eugenia,	<i>Palo Alto,</i>	English
A. B., Stanford, 1903.		
McComish, Ralph Clinton,	<i>Stanford University,</i>	Law
McCracken, Mary Isabel,	<i>Oakland,</i>	Physiology
A. B., Stanford, 1904.		
McCroskey, Edith Irene,	<i>Hollister,</i>	Mathematics
A. B., Stanford, 1904.		
McDonald, Ella Nancrede,	<i>Pasadena,</i>	Latin
McDougal, John Hynes,	<i>Belmont,</i>	Electrical Eng.
McDowell, Frances Evelyn,	<i>Los Angeles,</i>	German
A. B., Stanford, 1904.		
McFadden, Ralph John,	<i>Placentia,</i>	Geology
McFarland, John Cobb,	<i>Los Angeles,</i>	Law
MacFarland, Olive H.,	<i>Palo Alto,</i>	Physiology
B. L., Ohio Wesleyan Univ., 1893.		
McGee, Alice Ben,	<i>Denver, Colo.,</i>	Romanic Lang.
McGeorge, Edith,	<i>Eureka,</i>	History
MacGibbon, Eugene Howard,	<i>San Bernardino,</i>	Geol.-Mining
McGilvray, Jessie D.,	<i>Stanford University,</i>	German <i>Sp.</i>
McGovern, Edward Joseph,	<i>Palo Alto,</i>	Law <i>Sp.</i>
McIntosh, George Wade,	<i>Mentone,</i>	Civil Eng. <i>Sp.</i>
McIntyre, Katherine,	<i>Elsinore,</i>	English
Mackay, Minnie Laurie,	<i>Santa Clara,</i>	Botany
McKee, Bessie Willoughby,	<i>Palo Alto,</i>	German
McKibben, Mabel,	<i>Palo Alto,</i>	Latin
McKibben, Maud,	<i>Palo Alto,</i>	History
McLain, George Baundige,	<i>Los Angeles,</i>	Geol.-Mining <i>Sp.</i>
McLean, Herbert Harris,	<i>Colton,</i>	Civil Eng.
McManaman, Wilson,	<i>Monrovia,</i>	Geology and Mining
McMurphy, James Ira Wilson,	<i>Loleta,</i>	Zoology <i>Sp.</i>

McNaught, Carl Shelby,	<i>Seattle, Wash.,</i>	Geology
McNaught, Hector Cowan,	<i>Denver, Colo.,</i>	Geology
McNee, Alexander Edward,	<i>Palo Alto,</i>	Physiology
McNee, Royal John Hunter,	<i>Palo Alto,</i>	Economics
McNeil, Arthur James,	<i>Tracy,</i>	Civil Eng.
McNeil, Warren T.,	<i>Tracy,</i>	German
McPhail, Emery William,	<i>New Chicago, Mont.,</i>	Mathem.
MacSwain, Elizabeth Annie,	<i>Santa Clara,</i>	German
McWethy, William Ernest,	<i>Rialto,</i>	Electrical Eng.
Maloy, Jeff. L.,	<i>Mountain View,</i>	Law
Maloy, John W.,	<i>Mountain View,</i>	History
*Maloy, Walter C.,	<i>San José,</i>	Economics
A. B., Stanford, 1903.		
Manning, William Albert,	<i>Stanford University,</i>	Mathem.
A. B., Willamette Univ., 1900; A. M., Stanford, 1902.		
Mansfield, Albert,	<i>Redwood City,</i>	Law
Mansfield, George Curtis,	<i>Los Angeles,</i>	Economics
Manwaring, Clarence Tryon,	<i>Meriden, Conn.,</i>	Law
Marks, Henry Frank,	<i>San Francisco,</i>	English
Martin, Adelin,	<i>Stanford Univ.,</i>	Rom. Lang. Sp.
Martinson, George,	<i>Palo Alto,</i>	Law
A. B., Stanford, 1903.		
Mathews, Bryant,	<i>Los Angeles,</i>	Economics
Mathews, Lois Kimball,	<i>Stanford University,</i>	History
A. B., Stanford, 1903.		
Mathews, Ralph Berkley,	<i>San José,</i>	Electrical Eng.
Mathewson, Arthur Adelbert,	<i>Coronado,</i>	Geology and Mining
de Mattos, Augustine Edward,	<i>Watsonville,</i>	Law
Maulsby, Lulu Arminta,	<i>Palo Alto,</i>	English
May, Ernest Raymond,	<i>Los Angeles,</i>	Law
May, Frederic,	<i>Edenvale,</i>	Law Sp.
Meikle, Roy V.,	<i>Portland, Ore.,</i>	Civil Eng.
Meiklejohn, Edward Clark,	<i>Butte, Mont.,</i>	Chemistry
Menker, Raymond Chester,	<i>San José,</i>	Philosophy
Merrill, Arthur Tenny,	<i>Red Bluff,</i>	English
Merrill, John Albert,	<i>San Francisco,</i>	Law
Merriman, Laura Elizabeth,	<i>Palo Alto,</i>	English
Metzler, Hugo,	<i>Santa Cruz,</i>	Civil Eng.
Meyer, Alice Marie,	<i>Menlo Park,</i>	English
Miano, John Norton,	<i>San José,</i>	Electrical Eng.

* Work completed summer, 1903.

Miles, James Palmer,	<i>Castle Crag,</i>	Law
Millar, Paul E.,	<i>Santa Rosa,</i>	Latin
Miller, Arlin D.,	<i>Portland, Ore.,</i>	Electrical Eng.
Miller, Clark Flickner,	<i>Los Angeles,</i>	Civil Eng. <i>Sp.</i>
Miller, Dewey Harold,	<i>Oakland,</i>	Chemistry
Miller, Edith Frank,	<i>Sacramento,</i>	French
Miller, Eugenia Romain,	<i>Fresno,</i>	English
Miller, Iva Myrtle,	<i>Santa Ana,</i>	English
Miller, Joseph Adams, Jr.,	<i>Austin, Nev.,</i>	Chemistry
A. B., Stanford, 1904.		
Miller, Pearl Colby,	<i>Kansas City, Mo.,</i>	Mathematics
B. S., Univ. of Michigan, 1895.		
Mills, Anna Rae,	<i>San José,</i>	German
Mills, Sarah Matilda,	<i>National City,</i>	English
Miner, Adelaide M.,	<i>Pomona,</i>	History
A. B., Stanford, 1904.		
Mini, Joseph, Jr.,	<i>Los Gatos,</i>	Electrical Eng.
Minter, Lula Marie,	<i>Santa Ana,</i>	Latin
Minturn, Thomas Robinson,	<i>Stockton,</i>	Economics
Mirriclees, Edith R.,	<i>Bigtimber, Mont.,</i>	History
Mirsky, Minnie M.,	<i>San Francisco,</i>	Greek
A. B., Stanford, 1904.		
Misner, Francis Osborne,	<i>Palo Alto,</i>	Mechanical Eng. <i>Sp.</i>
Mitchell, John Pearce,	<i>Palo Alto,</i>	Chemistry
A. B., Stanford, 1903.		
Mitcheltree, Lota Mary,	<i>Palo Alto,</i>	English <i>Sp.</i>
Mitoma, Taizo,	<i>East Oakland,</i>	Elec. Eng. <i>Sp.</i>
Mobley, Blanche Julia,	<i>Fowler,</i>	English
Moise, Clarice Sara,	<i>San Francisco,</i>	French
Moise, Hazel Irene,	<i>San Francisco,</i>	French
Molfino, Albert Andrew,	<i>Jackson,</i>	Law
Montgomery, Beatrice,	<i>Red Oak, Ia.,</i>	English
A. B., Smith College, 1902.		
Montgomery, Henry Schuyler,	<i>Saginaw, Mich.,</i>	Chemical Eng.
Montgomery, Seymour Thomas,	<i>San José,</i>	Law
Monzingo, John Johnson,	<i>Palo Alto,</i>	Civil Eng.
Moore, Du Val,	<i>San Francisco,</i>	Economics
Moore, Edith Harriet,	<i>Pasadena,</i>	German
Moore, Emmet B.,	<i>Salt Lake City, Utah,</i>	Elec. Eng.
Moore, Grace Ethel,	<i>Spokane, Wash.,</i>	Latin
A. B., Stanford, 1904.		
Moore, Grant Hathaway,	<i>Los Gatos,</i>	Civil Eng.
Moore, Homer Frank,	<i>Palo Alto,</i>	Physiology

Moore, John Howard,	<i>New Wilmington, Pa.,</i>	English
A. B., Westminster College (Pa.), 1902.		
Moore, Mary Adaline,	<i>Pasadena,</i>	English
Moore, May Caro,	<i>Pasadena,</i>	English
Moran, Hugh Anderson,	<i>Palo Alto,</i>	Greek
Moran, Robert Breck,	<i>Palo Alto,</i>	Geology
Moorehouse, Willis Edwin,	<i>Huntsburg, Ohio,</i>	Economics
Mori, Jame,	<i>Pacific Grove,</i>	History
A. B., Stanford, 1904.		
Morin, William James,	<i>Stanford University,</i>	Romanic Lang.
Morris, Clare Elizabeth,	<i>Lewiston, Idaho,</i>	English
Morris, Earl Leonard,	<i>Santa Ana,</i>	Zoology
A. B., Stanford, 1904.		
Morris, Myrl,	<i>San Francisco,</i>	English
Morris, Ruth Eyer,	<i>Los Angeles,</i>	English
Morrison, Gertrude,	<i>Sharon, Pa.,</i>	English
Morrison, Harry Lee,	<i>Denver, Colo.,</i>	Geology
Morrow, Ben Stogden,	<i>Portland, Ore.,</i>	Civil Eng.
Morse, Charles Benjamin,	<i>Palo Alto,</i>	English
Mortenson, Harold Davis,	<i>Oak Park, Ill.,</i>	Economics
Moule, Irene Helen,	<i>San José,</i>	English
Moulton, Dudley,	<i>Palo Alto,</i>	Entomology
A. B., Stanford, 1903.		
Moulton, Mary Esther,	<i>Palo Alto,</i>	Botany
Mulvihill, Mary Frances,	<i>Redlands,</i>	Latin
Murphy, May Belle,	<i>San José,</i>	History
Murphy, Winnifred Catherine,	<i>Tacoma, Wash.,</i>	Botany
Myer, Blanche,	<i>Palo Alto,</i>	English
Myers, James Walter,	<i>Portland, Ore.,</i>	Education
Naftzger, Roy Edgar,	<i>Los Angeles,</i>	Economics
Nagel, Alice Emine,	<i>Davenport, Ia.,</i>	Mathematics
Nagel, Laura Ingeborg,	<i>Davenport, Ia.,</i>	German
✓ Nakamura, Taira,	<i>Oakland,</i>	Education Sp.
✓ Nakayama, Fumiya,	<i>Kioto, Japan,</i>	Mechanical Eng.
Narver, Anna Lois,	<i>Los Angeles,</i>	German
Nash, Edward Jay,	<i>Palo Alto,</i>	Electrical Eng.
*Nath, Dorothea Elizabeth,	<i>Davenport, Ia.,</i>	German
A. B., Iowa Coll., 1900; A. M., Stanford, 1903.		
Ncal, Olive Elizabeth,	<i>Lewiston, Idaho,</i>	English
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* Work completed summer, 1903.

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A. B., William Jewell Coll., 1900.		
Newcomb, Mary Alice,	<i>Palo Alto,</i>	English
Ph. B., Univ. Pacific, 1889.		
Newcomer, Robert Hitt,	<i>Mt. Morris, Ill.,</i>	Economics
Newman, Matilda V.,	<i>Stanford University,</i>	History
Nibley, Joel,	<i>Logan, Utah,</i>	Law Sp.
Nichols, George Richmond,	<i>Bozeman, Mont.,</i>	Law
Nichols, Mary Ernestine,	<i>Bozeman, Mont.,</i>	English
Nicholson, Anne Mary,	<i>San José,</i>	Education
Nickel, George Wilmarth,	<i>Menlo Park,</i>	French
Nightingill, Frank William,	<i>Oakland,</i>	Law Sp.
Nikirk, Frank Austin,	<i>San José,</i>	Civil Eng.
Nims, Charles Brewster,	<i>Muskegon, Mich.,</i>	Geol.-Mining
Nims, Joy,	<i>Pacific Grove,</i>	Chemistry
Nissen, James Garfield,	<i>Livermore,</i>	History
Nissen, Roger Christian,	<i>Livermore, Geology and Mining</i>	
Nisson, Eric August,	<i>Petaluma, Electrical Eng. Sp.</i>	
Nobs, Frederick William,	<i>Redwood City, Geol.-Mining</i>	
Nobs, Hattie Elsa,	<i>Redwood City,</i>	German
Noon, Grace Agnes,	<i>Palo Alto,</i>	History
North, Helen Kate,	<i>Los Angeles,</i>	Physiology
North, Wheeler Oren,	<i>Los Angeles,</i>	Geology
Norton, Janet Swift,	<i>San Francisco,</i>	Chemistry
Norvell, Louise,	<i>Merced,</i>	History
Nourse, Bayard Everhart,	<i>San Francisco,</i>	Chemistry
Nyman, Charlotte Ada,	<i>Palo Alto,</i>	History
Nyman, Rudolph Francis,	<i>Palo Alto,</i>	Law Sp.
Oakford, Benjamin Palmer,	<i>Palo Alto,</i>	Law
A. B., Stanford, 1902; LL. B., 1903.		
O'Brien, Mabel Genevieve,	<i>Merced,</i>	History
Officer, Elizabeth Logan,	<i>Salt Lake City, Utah,</i>	English
Ogier, Margaret,	<i>San José,</i>	Mechanical Eng.
Ogier, Walter Tullidge,	<i>San José</i>	Mechanical Eng.
Olsson-Seffer, Pehr Hjalmar,	<i>Stockholm, Sweden,</i>	Botany
Universities of Helsingfors and Upsala.		
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O'Neal, Josiah Philip,	<i>Fall Brook,</i>	Mechanical Eng.
O'Neill, Helen Howard,	<i>San José,</i>	Physics
Oppenheim, Morris,	<i>San Francisco,</i>	Law

Osborne, Clarence Bristol,	<i>Los Angeles,</i>	Geol. and Mining
Osborne, Edith Helen,	<i>Los Angeles,</i>	Drawing
Osborne, Raymond Gaylord,	<i>Los Angeles,</i>	Mining Eng.
Osgood, Charles Sumner,	<i>San José,</i>	English
Owen, Anabel,	<i>Los Angeles,</i>	English Sp.
Owen, Elise Dorrance,	<i>Stockton,</i>	History
Packard, Ashley Burdett,	<i>Bisbee, Ariz.,</i>	Law
Page, Joseph Henry,	<i>Stanford University,</i>	Law

A. B., Stanford, 1903.

Paine, Charles Treat,	<i>Redlands,</i>	Entomology
Paine, Charlotte,	<i>Redlands,</i>	History
Paine, William Craig,	<i>Redlands,</i>	Electrical Eng.
Palmer, Clayton Franklin,	<i>Stockbridge, Mass.,</i>	Zoology

B. S., Boston Univ., 1897.

Palmer, Jessie Bowen,	<i>Pasadena,</i>	German Sp.
Pardoe, Thomas Earl,	<i>Ogden, Utah,</i>	Mining Eng.
Park, Hugh, Jr.,	<i>Redding,</i>	Geology
Park, Robert Nym,	<i>Salt Lake City, Utah,</i>	Geology
Park, Sara Reid,	<i>Salt Lake City, Utah,</i>	French
Parker, Paul Percy,	<i>Salinas,</i>	Law

A. B., Stanford, 1903.

Parkhurst, Minnette Ada,	<i>Pacific Grove,</i>	English
Parsons, Augustus Taber,	<i>San José,</i>	Civil Eng.
Passmore, Maud,	<i>Stanford University,</i>	Physiology
Patterson, Hazel Moore,	<i>Los Angeles,</i>	English
Patterson, James Duullard,	<i>Reno, Nev.,</i>	Geol. and Mining
Paul, Warren, Jr.,	<i>Salt Lake City, Utah,</i>	Geology
Paxton, Charles Hugh,	<i>Orange,</i>	Mechanical Eng. Sp.
Paxton, William Arthur,	<i>Orange,</i>	Drawing
Peach, Charles,	<i>Stanford University,</i>	History
Pearce, Louise,	<i>Los Angeles,</i>	Physiology
Peaslee, Adelaide Jagger,	<i>Pasadena,</i>	German
Peaslee, Bertha Amelia,	<i>Pasadena,</i>	History
Peck, Anne Earle,	<i>Palo Alto,</i>	History

A. B., Stanford, 1898.

Peckham, Gertrude Catherine,	<i>San José,</i>	English
Pedlar, Calla Claire,	<i>San Francisco,</i>	English
Pedlar, Mary Hazel,	<i>San Francisco,</i>	English
Peek, Frank William, Jr.,	<i>Mokelumne Hill,</i>	Electrical Eng.
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A. B., Stanford, 1903.		
Perkins, Thomas Gale,	San Francisco,	Economics <i>Sp.</i>
Perrin, Anita Butler,	Stockton,	English
A. B., Stanford, 1904.		
Perrin, Arch,	San José,	History
Perry, Claire Minnie,	Palo Alto,	French
Perry, Emma Harris,	Palo Alto,	Botany <i>Sp.</i>
Perry, Irvin David,	Palo Alto,	Education
A. B., Stanford, 1903.		
Perry, Laura Cushman,	San Francisco,	Romanic Lang.
Peterson, Alvin,	Ephraim, Utah,	English
Peterson, Aurora Matilda,	Redwood City,	Latin
Peterson, Ida May,	Middleton,	History
Peterson, Peter Powell,	Kanesville, Utah,	Zoology
Petree, Lettie Elvira,	Palo Alto,	Drawing
Petree, Nora Elma,	Palo Alto,	English
Petree, Oran Adrian,	Palo Alto,	Mechanical Eng.
Pettingill, Tallahatchie,	Redlands,	History
Phelps, John Dudley,	San Francisco,	Chemistry
Phelps, Leta Louise,	Duluth, Minn.,	Mathematics
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Phillippi, Beatrice Genevieve,	Los Angeles,	English
Pier, Earl Harriman,	Santa Clara,	Law
Pierce, Charles Roy,	Erie, Pa.,	Law <i>Sp.</i>
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A. B., Allegheny Coll., 1892.		
Pierce, Samuel Hatch,	Erie, Pa.,	English <i>Sp.</i>
Pike, Robert Dickson,	San Francisco,	Mechan. Eng.
Pitman, Georgia Denne,	Palo Alto,	Zoology
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Pole, Frances Charles,	Palo Alto,	Greek
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Polson, Anna,	San José,	History
Pomeroy, Ernest Younger,	Palo Alto,	Geol.-Mining
Poore, Margaret Isabella,	Redding,	Education
Porter, Arthur M.,	Berkeley,	Electrical Eng.
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* Work completed summer, 1903.

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Preston, Archibald Edward,	<i>Santa Clara,</i>	Geol.-Mining
Preston, Frank Carlton,	<i>Woodside,</i>	Law
Price, Jacob Meday,	<i>Palo Alto,</i>	Chemical Eng.
Price, Berdella,	<i>Soquel,</i>	Latin
Proctor, Asa Glisson,	<i>Woodland,</i>	Civil Eng.
Pugh, Doris,	<i>Redwood City,</i>	English
Purviance, Leola Undine,	<i>Watsonville,</i>	Latin
Quiogue, Vicente,	<i>Manila, P. I.,</i>	Law Sp.
Rahr, Max,	<i>Manitowoc, Wis.,</i>	Chem. Sp.
Ralston, David,	<i>Mayfield,</i>	Economics
A. B., Univ. of Pacific, 1902.		
Ramsay, Lilian,	<i>Palo Alto,</i>	Entomology
Randall, Charles Alfred,	<i>Redding,</i>	Mining Eng. Sp.
Randall, Josephine Louise D.,	<i>Palo Alto,</i>	Zoology
Randall, William Ramsey D.,	<i>Palo Alto,</i>	Physiology
Rawdon, Mary Ellen,	<i>Palo Alto,</i>	English
Ray, James Chandler,	<i>Duluth, Minn.,</i>	Geol.-Mining
Ray, Mabel Clara,	<i>Long Beach,</i>	Zoology
Raymond, Elma Annette,	<i>Palo Alto,</i>	History
Reardon, Joseph Erwin,	<i>San José,</i>	Law
Rebendorff, Maria Martha,	<i>Berkeley,</i>	German
Record, Seth Watrous,	<i>Palo Alto,</i>	Mathematics
Redman, Frank M.,	<i>Fargo, N. D.,</i>	Elec. Eng.
Reed, Haines Wadsworth,	<i>Los Angeles,</i>	Economics
Reed, Inez Whitmore,	<i>Oakland,</i>	Mathematics
Reed, Samuel Payne, Jr.,	<i>Los Gatos,</i>	Electrical Eng.
Reeves, Edna Mary,	<i>Ukiah,</i>	Zoology
Reinhart, Anna,	<i>Olympia, Wash.,</i>	Drawing
Reyburn, Emory Everett,	<i>Fresno,</i>	Electrical Eng. Sp.
Reynolds, Delmar Milton,	<i>Pasadena,</i>	English
Reynolds, Emily Irene,	<i>Palo Alto,</i>	English
Reynolds, Marion Frederick,	<i>San Bernardino,</i>	History
Rhuart, Archibald Bennett,	<i>Los Angeles,</i>	Law
Rhyne, Homer,	<i>Paso Robles,</i>	Geology-Mining
Rice, Edward Stanley,	<i>Redding,</i>	Electrical Eng.
Rice, Edward Waldo,	<i>Fallbrook,</i>	Geol.-Mining Sp.
Rice, Edward Walter,	<i>Oakland,</i>	Law

A. B., Stanford, 1902.

Rice, George Stanley,	<i>Redwood City,</i>	Law
Richards, Alice May,	<i>Palo Alto,</i>	English
Richards, Dexter Newell,	<i>Gridley,</i>	Physiology
Richards, Irmagarde,	<i>Palo Alto,</i>	Greek
A. B., Stanford, 1902.		
Richardson, Karl Asa,	<i>Worcester, Mass.,</i>	Civil Eng.
Rider, William Leslie,	<i>Palo Alto,</i>	History
A. B., Stanford, 1902.		
Ritchie, William,	<i>Fields Landing,</i>	Law
Rittenhouse, Emmet Cloyd,	<i>Santa Cruz,</i>	Law
Ritter, Ovid Herbert,	<i>Stockton,</i>	Latin
Rixford, Katherine Tillinghast,	<i>San Francisco,</i>	French
Robbins, William Arthur,	<i>Palo Alto,</i>	Law Sp.
Robertson, Harry,	<i>Redwood City,</i>	Mechan. Eng.
Robinson, Alfred Porter,	<i>San Francisco,</i>	English
Robinson, Edward Oscar,	<i>Napa,</i>	English
Robinson, Flora Mabel,	<i>Oakland,</i>	English
Robinson, Harold Allison,	<i>Los Angeles,</i>	Law Sp.
Robinson, Telulah Nye,	<i>Cloverdale,</i>	History
B. S., Westfield Coll., 1895; M. S., 1903.		
Robotham, Edna May,	<i>Redlands,</i>	Latin
Rocca, Beatrice Marie,	<i>Middletown,</i>	English
Rockey, Paul,	<i>Portland, Ore.,</i>	Physiology
Rode, Harry,	<i>Palo Alto,</i>	Education
B. S., Blackburn Univ., 1899; A. M., Columbia Univ., 1900.		
Roedel, Alice Louise,	<i>San Mateo,</i>	Latin
Roehr, Frank,	<i>San José,</i>	Law
Rogers, Thomas Farwell,	<i>San José,</i>	Civil Eng.
Roller, Jennie Josephine,	<i>Palo Alto,</i>	English
Rood, Clara Jessie,	<i>Pasadena,</i>	German
Roosevelt, Will Kelley,	<i>Ackley, Ia.,</i>	Mining Eng.
Root, Alexander Burt,	<i>Emerson, Manitoba,</i>	Civ. Eng.
Roscoe, William Wallace,	<i>Upper Mattole,</i>	History Sp.
Rose, Andrew Henry,	<i>Ontario,</i>	Law
Rose, Mary Ada,	<i>Compton,</i>	Drawing
Roseberry, Fred Thomas,	<i>Pope Valley,</i>	Geol.-Mining
Roseberry, Louis Heaton,	<i>Pope Valley,</i>	Law
A. B., Stanford, 1903.		
Rosenfeld, Arthur,	<i>Portland, Ore.,</i>	Physiology
Rosenfeld, James Wendal,	<i>Portland, Ore.,</i>	Physiology
Ross, Carl Thorburn,	<i>Astoria, Ore.,</i>	Physiology
Ross, Florence Julia,	<i>Wabash, Ind.,</i>	Chemistry

Ross, Hall Carlos,	<i>Belmont,</i>	Law
	A. B., Stanford, 1903.	
Ross, Lee Thornton,	<i>Belmont,</i>	History
Ross, Perley Ason,	<i>Fallbrook,</i>	Electrical Eng.
Rosseter, Ethel Lucy,	<i>Redwood City,</i>	German
Rosseter, Myrtle Brace,	<i>Redwood City,</i>	German
Rothrock, Data Ethel,	<i>Spokane, Wash.,</i>	English
Rowell, Bernice C.,	<i>Easton,</i>	German
Ruggles, Howard Edwin,	<i>San Francisco,</i>	Physiology
Rule, Gerald Ashley,	<i>Los Angeles,</i>	English
Rule, Orville Rey,	<i>Los Angeles,</i>	English
Rusk, Hester Dresser Babb,	<i>Palo Alto,</i>	Economics
Russell, Isaac,	<i>Stanford University,</i>	English
Russell, Lawrence Greenleaf,	<i>San Francisco,</i>	Mech. Eng. Sp.
Rust, David Dexter,	<i>Provo City, Utah,</i>	English
Ryone, Le Roy Tracy,	<i>Stanford Univ.,</i>	Geol.-Min. Sp.
Sales, Dudley Daniel,	<i>Denver, Colo.,</i>	Law
Salisbury, Helen Molyneaux,	<i>Los Angeles,</i>	English
Sanborn, Gertrude Elizabeth,	<i>Yuba City,</i>	History
Sanders, Ethyl Grace,	<i>Spokane, Wash.,</i>	Latin
Sanderson, Jerry Blaine,	<i>Oakland,</i>	Geology-Mining
Sankey, Stella Belle,	<i>Palo Alto,</i>	Drawing Sp.
Saunders, Benjamin Rankin,	<i>Redwood City,</i>	Geol.-Mining
Savage, Henry Ennis,	<i>Salem, Ore.,</i>	Chemistry
Savage, Harry King,	<i>Maher, Colo.,</i>	Civil Eng. Sp.
Sayre, Edith Athalia,	<i>San Francisco,</i>	Economics
Schaaf, Daniel Louis,	<i>San José,</i>	Electrical Eng.
Schaupp, Ernest G.,	<i>Santa Rosa,</i>	German
Schmidt, Arthur Albert,	<i>Chicago, Ill.,</i>	Physiology
Schneider, Florence Margaret,	<i>Palo Alto,</i>	Zoology
Schneider, Frederick,	<i>Palo Alto,</i>	Law Sp.
Scholfield, William Rufus,	<i>Wausau, Wis.,</i>	Civil Eng.
Schrader, Gustave,	<i>Los Angeles,</i>	Geol.-Min. Sp.
Schulte, Walter Gustav Adolph,	<i>San Francisco,</i>	Physiology
	A. B., Stanford, 1904.	
Schulz, Lou Ernest,	<i>Porterville,</i>	Mechanical Eng.
Schwabacher, Samuel Isaac,	<i>San Francisco,</i>	Chemistry
Scofield, Elizabeth,	<i>Palo Alto,</i>	Drawing Sp.
Scott, Alice Brooks,	<i>Duluth, Minn.,</i>	English
Scott, Anne Lockerby,	<i>Pomona,</i>	English
Scotti, Joseph Richard,	<i>Albuquerque, N. M.,</i>	Law

Scoville, Gilbert Lafayette,	<i>Corona,</i>	Electrical Eng.
Scoville, Harry Franklin,	<i>Corona,</i>	Law
Scudder, John Lawrence,	<i>Ogden, Utah,</i>	Electrical Eng.
Seadler, Ruth Estelle,	<i>San Francisco,</i>	Economics
Searcy, Charles Louis,	<i>Santa Rosa,</i>	Mathematics

B. C. E., Purdue Univ., 1901; C. E., 1902.

Sergeant, Lawrence Herring,	<i>Pasadena,</i>	Mechanical Eng.
Sears, Mary Elizabeth,	<i>Portland, Ore.,</i>	Latin
Sears, Maud May,	<i>Hydesville,</i>	Physiology
Seibert, Donald Kingsland,	<i>San Francisco,</i>	Law
Seifried, Ada Louise,	<i>Denver, Colo.,</i>	English
Seifried, Charles F.,	<i>Denver, Colo.,</i>	Civil Eng.
Seminario, José Ysaac Suarez,	<i>San Francisco,</i>	Law
Severance, Harriet Crittenden,	<i>Arrowhead,</i>	English
Severy, Hazel Wood,	<i>Pasadena,</i>	Chemistry
Sevier, Florence M.,	<i>Eureka,</i>	Latin
Sevier, Irving Henry,	<i>Eureka,</i>	Geology and Mining
Shafer, John Harper,	<i>San Antonio, Tex.,</i>	Elec. Eng.
Shaner, George Franklin,	<i>Los Gatos,</i>	Law
Shedd, Solon,	<i>Pullman, Wash.,</i>	Geology

A. B., Stanford, 1896.

Sheehy, John Joseph,	<i>San Rafael,</i>	Geology
Sherriffs, Alexander,	<i>San José,</i>	Law
Sherry, Ralph Harrison,	<i>Troy, N. Y.,</i>	Chemistry
Sherwood, Clarence Standish,	<i>Hartford, Conn.,</i>	History
Sherwood, Minor Correll,	<i>Oklahoma City., Okla.,</i>	German
Shibamiya, Yasohiko,	<i>Tokyo, Japan,</i>	English
Shields, Harvey,	<i>Eureka,</i>	Electrical Eng.
Shine, Albert Thomas,	<i>Redwood City,</i>	Law
Shipley, Howard Maynard,	<i>Palo Alto,</i>	Economics Sp.
Shutt, Nathan Emery,	<i>Santa Monica,</i>	Chemistry
Shutts, Fred Ordway,	<i>Los Angeles,</i>	Civil Eng.
Silent, Chester,	<i>Los Angeles,</i>	Law
Silvey, Antone,	<i>Elmira,</i>	Economics
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A. B., Stanford, 1904.

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Singletary, Emory Grigsby,	<i>San José,</i>	Civil Eng.
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Sinnamon, Phil Ray,	<i>Palo Alto,</i>	Civil Eng.
Sinnock, Frank Brown,	<i>Quincy, Ill.,</i>	Civil Eng.

Sisson, Louis Eugene,	<i>Palo Alto,</i>	English
Sloan, William Henry,	<i>Palo Alto,</i>	Chemistry
A. B., Stanford, 1903.		
Smith, Caroline Rowell,	<i>Evanson, Ill.,</i>	English
Smith, Edgar C.,	<i>Pocatello, Idaho,</i>	Civil Eng.
* Smith, Edward Augustus, Jr.,	<i>Denver, Colo.,</i>	Geology
A. B., Stanford, 1903.		
Smith, Frank Gerard,	<i>Palo Alto,</i>	Law Sp.
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Smith, Gertrude Mary,	<i>Campbell,</i>	Greek
Smith, Harold Fred,	<i>Campbell,</i>	History
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Smith, James Obadiah Michel,	<i>Hosmony Grove, Ga.,</i>	English Sp.
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Smith, Margaret Bell,	<i>San Francisco,</i>	Chemistry
Smith, Mary Shannon,	<i>Lee, Mass.,</i>	Education
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A. B., Stanford, 1903.		
Smith, Stuart Sawyer,	<i>Campbell,</i>	Economics
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B. S., Univ. of Wisconsin, 1902.		
Snively, Harry Norman,	<i>Waynesboro, Pa.,</i>	Chemistry
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A. B., Milton Coll. (Wis.), 1898.		
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Spencer, Edith Emerson,	<i>Los Angeles,</i>	English
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A. B., Univ. of Arkansas, 1898.		
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Spinney, Blanche Gardner,	<i>Des Moines, Ia.,</i>	English
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Stanford, James Nichols,	<i>Olympia, Wash.,</i>	English
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Stedler, Charles John,	<i>Palo Alto,</i>	Geol.-Mining Sp.
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Stephenson, James Burton,	<i>Orange,</i>	Law
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Stevens, George Richards,	<i>Benicia,</i>	Geology and Mining
Stevenson, Clara,	<i>Menlo Park,</i>	English
Stevenson, Cornelia,	<i>Seattle, Wash.,</i>	English
Stewart, Gordon Armstrong,	<i>Danville,</i>	Law Sp.
Stewart, William George,	<i>Washington, Ia.,</i>	Geol.-Mining
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Stillman, Edgar,	<i>San Francisco,</i>	German
Stillson, Harriet Alice,	<i>Craig, Neb.,</i>	English
Stolz, Mary Rosalie,	<i>Redlands,</i>	English
Stone, Alice Grace,	<i>San José,</i>	Latin
Stone, Clinton Erwyn,	<i>San José,</i>	History
Storey, John Cowan,	<i>Seattle, Wash.,</i>	Civil Eng.
A. B., Univ. of Washington, 1900.		
Stork, Victor Eyttinge,	<i>Sierra Madre,</i>	Physiology
Stott, Edmund Plowden,	<i>Portland, Ore.,</i>	Law
Strassburger, Lawrence,	<i>San Francisco,</i>	Economics
Stream, Edwin Glen,	<i>Creston, Ia.,</i>	Law
Street, Horace Marvin,	<i>Sonora,</i>	Law
Strong, Harold William,	<i>Corvallis, Ore.,</i>	Law
Stroud, Genevieve,	<i>Alhambra,</i>	English
Stroud, Gertrude Esther,	<i>Alhambra,</i>	English
Strout, Gale Stanley,	<i>Sebastopol,</i>	Civil Eng.

Strunsky, Rose,	<i>San Francisco,</i>	History
Studley, Clarence Knight,	<i>Adin,</i>	Physics
Stuntz, William Oliver,	<i>Suisun,</i>	Botany
Suits, Charlotte Belle,	<i>Santa Monica,</i>	English
Sullivan, Anna C.,	<i>Hollywood,</i>	Economics
Sullivan, Florance Francis,	<i>Oregon City, Ore.,</i>	Geol.-Mining
Sussman, Leo I.,	<i>San Francisco,</i>	Chemistry
Sutherland, Emma Roberta Lee,	<i>Berkeley,</i>	Physiology
Sutton, Frank McKenzie,	<i>Berkeley,</i>	Electrical Eng.
Swain, Ira Augustus,	<i>Palo Alto,</i>	Chemistry Sp.
Swartzlander, Joseph Slack,	<i>Omaha, Neb.,</i>	Physiology
Swayne, Warren Hasting,	<i>Alameda,</i>	History
Sweetland, Eulavelle,	<i>Lemoore,</i>	Physiology
Sweetman, Claire Frederica,	<i>Billings, Mont.,</i>	Latin
Swinerton, Alfred Bingham,	<i>San Francisco,</i>	Geology
Swing, Phil David,	<i>San Bernardino,</i>	Law
Taber, Stephen,	<i>Richmond, Va.,</i>	Mining Eng.
Taft, Harris Welch,	<i>Santa Monica,</i>	Law
Taft, Muriel Charlena,	<i>Santa Monica,</i>	English
Taft, Wilber R.,	<i>Palo Alto,</i>	History
— Takesaki, Yasoo,	<i>Oakland,</i>	Philosophy
Tarbell, George Armstrong,	<i>Cumberland, B. C.,</i>	Elec. Eng. Sp.
Tarbell, Olga S.,	<i>Santa Rosa,</i>	Zoology
Tarbell, Ruth Georgia,	<i>Santa Rosa,</i>	English
Tarpey, David,	<i>Palo Alto,</i>	Geol. and Mining
Tarpey, Paul Albert,	<i>Palo Alto,</i>	Law
Taylor, Charles Bertrand,	<i>Stanford University,</i>	Min. Eng.
Taylor, Charles Marvin,	<i>Menlo Park,</i>	Electrical Eng.
Taylor, William Ross,	<i>Palo Alto,</i>	Physiology
Techow, Wolfgang,	<i>Berlin, Germany,</i>	Geol.-Min. Sp.
Thayer, Jessie S.,	<i>San Francisco,</i>	English
Thiriot, George Milton,	<i>Santa Clara,</i>	English
Thoburn, Helen,	<i>Palo Alto,</i>	English
Thomas, Beulah Ruth,	<i>Palo Alto,</i>	Law Sp.
Thomas, George M.,	<i>Santa Rosa,</i>	Law
Thomas, Halbert Ray,	<i>Los Angeles,</i>	Electrical Eng.
Thomas, Micajah Anderson, Jr.,	<i>Ukiah,</i>	Law
*Thompson, Andrew Garl,	<i>Stanford University,</i>	Law
	A. B., Stanford, 1903.	
Thompson, Bertha Henney,	<i>Palo Alto,</i>	Botany

* Work completed summer, 1903.

Thompson, Charles Henry,	<i>Clovis,</i>	Syst. Botany
B. S., Kansas State Agr. Coll., 1893; M. S., 1898.		
Thompson, Charles Silent,	<i>Paso Robles,</i>	Zoology
Thompson, Estelle,	<i>San José,</i>	Drawing
Thompson, John Hamer,	<i>San José,</i>	Entomology
Thompson, Mary Evangeline,	<i>Palo Alto,</i>	English <i>Sp.</i>
Thompson, Robert A.,	<i>Palo Alto,</i>	Education
Thompson, Seth Blaine,	<i>Butte, Mont.,</i>	Law
Thomson, Austin McKee,	<i>Stanford Univer.,</i>	Geol.-Mining
Thomson, Jessie Giffen,	<i>Stanford Univer.,</i>	German <i>Sp.</i>
Thomson, William Henry,	<i>Stanford University,</i>	History
Thorp, Charles Augustus,	<i>Stockton,</i>	Mechan. Eng. <i>Sp.</i>
Thorpe, Merle Harrold,	<i>Ellsworth, Kans.,</i>	Law
Thorpe, Roy Pearl,	<i>Palo Alto,</i>	Electrical Eng.
Tibbey, Benjamin,	<i>Salt Lake City, Utah,</i>	Elec. Eng.
Tiffany, Edith Mildred,	<i>San José,</i>	History
Timmons, Myrtle Leonore,	<i>Santa Ana,</i>	English
Titus, Charles Mantor,	<i>Freestone,</i>	Mathematics
Tompkins, Clara Alice,	<i>Paris, Ill.,</i>	Botany
A. B., Stanford, 1904.		
Totzek, Bruno Herman,	<i>Roswell, N. M.,</i>	Elec. Eng.
Trader, Kittie Louise,	<i>Palo Alto,</i>	Romanic Lang.
Traphagen, Hazel Adah,	<i>Los Angeles,</i>	Physiology
Traphagen, Katharine Ethel,	<i>Los Angeles,</i>	English
Treat, Henry Alexander,	<i>Los Angeles,</i>	Mathematics
Treat, Payson Jackson,	<i>New York, N. Y.,</i>	History
A. B., Wesleyan Univ., 1900; A. M., Columbia Univ., 1903.		
Trent, Walter Edwin,	<i>Stanford Univ.,</i>	Geol.-Min. <i>Sp.</i>
Tripp, Lydia Mae,	<i>Palo Alto,</i>	Botany
Tritch, Walter Edwin,	<i>Forest Hill,</i>	Chemistry
Trost, Brice Loveland,	<i>Ferndale,</i>	Electrical Eng.
Trowbridge, Alfred Lockwood,	<i>Portland, Ore.,</i>	Civil Eng.
True, Lawrence Knight,	<i>Chicago, Ill.,</i>	Economics
Tucker, Clay Harrison,	<i>Selma,</i>	Law <i>Sp.</i>
Tucker, Frank Blackburn,	<i>Washington, D. C.,</i>	Greek
Turner, Maude Elizabeth,	<i>Talmage,</i>	Latin
Turner, Waldo Egerton,	<i>San José,</i>	Law
Turpin, Floyd Light,	<i>San Francisco,</i>	Law
Tyler, Willard Thurston,	<i>Woodland,</i>	Elec. Eng.
Uchida, Yausuke,	<i>Yamaguchi, Japan,</i>	English
Ulrich, Ferdinand Emil,	<i>Lamar, Mo.,</i>	Law <i>Sp.</i>
Upham, Augusta May,	<i>Palo Alto,</i>	German

Valdes, Robert,	<i>Santa Rosa,</i>	Electrical Eng.
Van Bergen, Edgar Nichlous,	<i>San Mateo,</i>	Economics
Van Dine, Melvin Everett,	<i>Cupertino,</i>	Law
Van Gilder, Isadore Stuart,	<i>Denver, Colo.,</i>	Mathematics
Van Norden, Maximilian L.,	<i>Sacramento,</i>	Geology
Van Sickle, Garrett Foster,	<i>Pasadena,</i>	Geology-Mining
Van Sickle, True,	<i>San José,</i>	Law
Van Uxem, Louise,	<i>Oakland,</i>	History
Venner, Orlin Hale,	<i>Corydon, Ind.,</i>	English
Ph. B., Berea (Ky.) Coll., 1902.		
Vestal, Maxwell,	<i>San José,</i>	Electrical Eng.
Vickers, Anna,	<i>Los Angeles,</i>	English
Vorhes, May Earhart,	<i>San Diego,</i>	English
Voris, Elizabeth,	<i>Akron, Ohio,</i>	Latin
Voss, Maxwell Hughes,	<i>Palo Alto,</i>	Electrical Eng.
Wagner, Adela Beatrice,	<i>Ventura,</i>	History
Wagner, Herbert Theodore,	<i>Indianapolis, Ind.,</i>	Physiology
Wakeman, Earl Seeley,	<i>Campbell,</i>	English
Walker, Henry Earl,	<i>Palo Alto,</i>	Geology and Mining
Wall, Edgar Tingley,	<i>Evanston, Ill.,</i>	Physics
Wanzer, Florence Helena,	<i>Santa Cruz,</i>	English
A. B., Stanford, 1904.		
Ward, John McCartney,	<i>Chula Vista,</i>	Law
Ward, Milola Joy,	<i>Portland, Ore.,</i>	English
Ward, Nathaniel Lyon,	<i>Mayfield,</i>	Law
LL. B., Univ. of Washington, 1903.		
Ward, Wendell William,	<i>Beaumont, Tex.,</i>	German
Waring, Gerald Ashley,	<i>Fallbrook,</i>	Geology
Wassman, Max, Jr.,	<i>San José,</i>	English
Waterhouse, Ruth Angeline,	<i>Stanford University,</i>	English
Waterman, William Arthur,	<i>Palo Alto,</i>	Mechan. Eng. Sp.
Wathey, Ralph Lockwood,	<i>Palo Alto,</i>	Chemistry
Watson, Henry Felton,	<i>San Francisco,</i>	Elec. Eng. Sp.
Waxham, Marjorie Evelyn,	<i>Palo Alto,</i>	English
A. B., Wellesley Coll., 1898.		
Way, Alvah Bing,	<i>Redwood City,</i>	Education
Ph. B., Ottawa Univ., 1897.		
Weaver, Gertrude Benjamin,	<i>Palo Alto,</i>	Latin
Webber, Burpee Ogilvie,	<i>Santa Cruz,</i>	Electrical Eng.
Webster, Samuel Harvey,	<i>Rutan, Pa.,</i>	Law
A. B., Waynesburg (Pa.) Coll., 1893.		
Weihe, Harry Augustus,	<i>San Francisco,</i>	Economics

Weinmann, Louis Randolph,	<i>Alameda,</i>	Law
Weir, Mabel McQueen,	<i>Boone, Ia.,</i>	Latin
	A. B., Stanford, 1901.	
Weisel, Hans Victor,	<i>Anaheim,</i>	Chemistry
Weiser, Charles William,	<i>Grand Junction, Colo.,</i>	Law
	Ph. B., Colorado Coll., 1902.	
Weller, Fanny Emily,	<i>Waitsburg, Wash.,</i>	English
Weller, Milo James,	<i>Ft. Bragg,</i>	Civil Eng.
Wellman, Anna Winifred,	<i>Carlsbad,</i>	English Sp.
Wells, George Summers,	<i>San José,</i>	Education
	A. B., Stanford, 1901.	
Wentz, Walter Yeeling,	<i>San Diego,</i>	English Sp.
Werner, Oscar,	<i>Los Angeles</i>	Mechan. Eng.
West, Raymond Fred,	<i>Seattle, Wash.,</i>	Law
Westall, Edith,	<i>Palo Alto,</i>	French
Westfall, Victor Barbee,	<i>Fallbrook,</i>	Economics
Whealton, Hallie May,	<i>Chincoteague Is., Va.,</i>	French
Wheeler, Howard D.,	<i>Montclair, N. J.,</i>	Psychol. Sp.
Whiting, Charles Henry,	<i>Berkeley,</i>	Chemistry
	A. B., Stanford, 1904.	
Whitmire, Ethel Dorothy,	<i>San José</i>	Latin
Whitmore, Herbert Marcellus,	<i>San José,</i>	Electrical Eng.
Wilbur, Fred Miner,	<i>Marshalltown, Ia.,</i>	Chemistry
Wilde, Herbert Russell,	<i>Dobbs Ferry, N. Y.,</i>	Elec. Eng.
Wiley, DeWitt Charles,	<i>Seattle, Wash.,</i>	Geology
Wilhelm, Frederick S.,	<i>Portland, Ore.,</i>	Law
Wilhelm, Victor H.,	<i>Portland, Ore.,</i>	Geol.-Mining
Williams, Francis Xavier,	<i>San Francisco,</i>	Entomology
	A. B., St. Ignatius Coll., 1903.	
Williams, John D.,	<i>Palo Alto,</i>	English
Williams, Lenore Lorain,	<i>Portland, Ore.,</i>	English
Williams, Paul S.,	<i>San José,</i>	Physiology
Williams, Robert Arthur,	<i>Portland, Ore.,</i>	Physiology
Wilson, Arden Martin,	<i>Cleveland, Ohio,</i>	Geol.-Mining
Wilson, Doxey Robert,	<i>San José,</i>	Mechanical Eng.
Wilson, Harriet L.,	<i>San José,</i>	Botany
Wilson, Jessica Blythe,	<i>San José,</i>	History
Wilson, Julia Edna,	<i>Palo Alto,</i>	French
Wilson, Orrin Allen,	<i>Clinton, Ia.,</i>	Economics
Wilson, William Webster,	<i>Los Angeles,</i>	Elec. Eng. Sp.
Winslow, Mercelia Anna,	<i>Bartlett Springs,</i>	English
Winter, Frank Cook,	<i>Stanford University,</i>	Chem. Sp.

Catalogue of Students

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Wintler, Carl Butler,	<i>Stanford University,</i>	Law
Wintler, Clarence Henry,	<i>Vancouver, Wash.,</i>	Law
Wirt, William,	<i>Santa Rosa,</i>	English
Wolcott, Oliver George,	<i>Palo Alto,</i>	Economics
Wolff, Marcus,	<i>San Francisco,</i>	Economics Sp.
Wolfley, May,	<i>Palo Alto,</i>	English
Wolfley, Nettie Orcena,	<i>Palo Alto,</i>	German
Wood, John Graham,	<i>Indianapolis, Ind.,</i>	Mech. Eng.
Wood, Percy Addison,	<i>Sacramento,</i>	Law
Wood, Walter Edwin,	<i>Rivera,</i>	Chemistry Sp.
Wood, Winifred,	<i>Palo Alto,</i>	History
Woodhams, Frederick Oscar,	<i>Santa Clara,</i>	Electrical Eng.
Woods, Pansy May,	<i>Palo Alto,</i>	English
Woods, Robert S.,	<i>Los Angeles,</i>	Electrical Eng.
Woolsey, Zoe Larkins,	<i>Visalia,</i>	English

A. B., Stanford, 1904.

Wooster, Charles Bassett,	<i>Eden Vale,</i>	Law
Worstell, Harrold Egbert,	<i>Palo Alto,</i>	Law
Wotkyns, Benjamin Marshall,	<i>Pasadena,</i>	Economics
Wright, Emma Minerva,	<i>San Francisco,</i>	Economics
Wright, Irene Aloha,	<i>Pueblo, Colo.,</i>	History
Wright, Lathrop Boone,	<i>Santa Rosa,</i>	Physiology
Wu, Kuei-ling,	<i>Berkeley,</i>	Electrical Eng.
Wyckoff, Harry Alphonso,	<i>Palo Alto,</i>	Physiology.
Wynne, Estella Frances,	<i>San Francisco,</i>	English
Yafune, Yoshimasa,	<i>San Francisco,</i>	Economics
Yantis, Frances A.,	<i>Lewiston, Idaho,</i>	English
Yasuda, John Katsukichi,	<i>San Francisco,</i>	Psychology
Yeiser, James,	<i>Omaha, Neb.,</i>	English
Yerington, Henry Herbert,	<i>Carson, Nev.,</i>	Physiology
Yoch, Bertha Mary,	<i>Santa Ana,</i>	German
Yoch, Elizabeth Clementine,	<i>Santa Ana,</i>	Latin
Yoder, Noah S.,	<i>Palo Alto,</i>	English
Yoell, Beatrice Ethel,	<i>San José,</i>	French
Yorke, Edwina,	<i>Sacramento,</i>	English
Yoshimi, Masashi,	<i>Tokio, Japan,</i>	Education
Young, Albert Loftus,	<i>Portland, Ore.,</i>	Physiology
Young, William Thomas,	<i>Ft. Jones,</i>	Chemistry
Zimmerman, Fred,	<i>Portland, Ore.,</i>	English
Zoffman, George Fred,	<i>Jolon,</i>	Geology and Mining
Zschokke, Irma Julia,	<i>Palo Alto,</i>	Economics

SUMMARIES

 OFFICERS

TRUSTEES		15
FACULTY		
Professors	29	
Associate Professors	25	
Assistant Professors	26	
Instructors	33	
Assistants	32	145
OTHER OFFICERS.....		39

STUDENTS

IN GRADUATE STANDING.....	113
UNDERGRADUATES	1229
SPECIAL STUDENTS	143
Total	1485

BY DEPARTMENTS

Major Subject	Graduate	Under-Graduate	Special	Total	*No. Stud'ts taking work	*Sum of all class lists
Greek	3	11	....	14	†293	341
Latin	9	60	1	70	‡180	270
German	5	63	6	74	345	504
Romantic Languages..	2	39	2	43	270	339
English	12	217	17	246	527	887
Biblical History .....	....	....	....	....	186	207
Philosophy	1	4	....	5	....	...
Psychology	1	1	1	3	195	210
Education	8	13	2	23	248	359
History	7	89	2	98	346	502
Economics	2	69	8	79	131	182
Law	20	161	31	212	141	418
Drawing	2	18	3	23	59	92
Mathematics	6	24	1	31	235	410
Physics	1	7	1	9	125	132
Chemistry	6	61	10	77	203	322
Botany	7	12	1	20	62	87
Physiology	6	58	9	73	85	133
Hygiene .....	....	....	....	....	433	467
Zoology	3	23	1	27	50	65
Entomology	4	7	1	12	69	81
Bionomics .....	....	....	....	....	70	70
Geology	5	104	9	118	151	225
Engineering .....	....	....	....	....	123	123
Civil Engineering....	1	75	9	85	60	75
Mechanical Eng.....	2	32	15	49	204	341
Electrical Eng.....	....	81	13	94	32	100
Manual Training ....	....	....	....	....	95	95
Bibliography .....	....	....	....	....	3	3
Music .....	....	....	....	....	45	45

* Second semester.

† Including 244 Non-Greek students.

‡ Including 59 Non-Latin students.

BY RESIDENCE

California	1119	Wisconsin	4
Oregon	40	Arizona	3
Colorado	34	Kansas	3
Washington	33	Kentucky	3
Utah	25	South Dakota	3
Iowa	23	North Dakota	2
Illinois	18	Oklahoma	2
Montana	14	Tennessee	2
Pennsylvania	14	Vermont	2
Missouri	12	Virginia	2
Idaho	8	Florida	1
Indiana	8	Georgia	1
Massachusetts	8	Hawaii	1
New York	8	New Hampshire	1
Ohio	8	Rhode Island	1
Michigan	7	West Virginia	1
Nevada	7	Wyoming	1
Minnesota	6	Japan	9
Nebraska	6	Canada	4
New Mexico	6	England	3
Texas	6	Mexico	3
Arkansas	5	Australia	2
District of Columbia	5	Germany	1
Connecticut	4	Philippine Is.	1
New Jersey	4	Sweden	1

CALIFORNIA BY COUNTIES

Alameda	37	Merced	4	San Mateo	44
Amador	1	Modoc	2	Santa Barbara ..	9
Butte	6	Mono	1	Santa Clara	447
Calaveras	1	Monterey	8	Santa Cruz	16
Colusa	1	Napa	10	Shasta	11
Contra Costa ..	3	Nevada	1	Solano	8
Eldorado	2	Orange	22	Sonoma	23
Fresno	11	Placer	2	Siskiyou	1
Humboldt	16	Riverside	21	Stanislaus	5
Inyo	2	Sacramento	9	Sutter	2
Kern	3	San Benito	2	Tehama	3
Kings	1	San Bernardino ..	39	Tulare	13
Lake	5	San Diego	31	Tuolumne	2
Los Angeles	147	San Francisco ..	100	Ventura	3
Marin	1	San Joaquin	16	Yolo	5
Mendocino	10	San Luis Obispo ..	10	Yuba	2

DEGREES CONFERRED

May 25, 1903, * September 4, 1903, † January 8, 1904

BACHELOR OF ARTS

GREEK

Audrey Ruth Brown,	Angus Clifton Hull,
Esther Crandall,	†Edwin Gifford Lamb,
	†Minnie M. Mirsky.

LATIN

Muriel Adelaide Beamer,	†Reuben Fenton Howe,
Alexander Stockton Boulware,	Mae Louise Johnson,
†Lucretia Boulware,	Homer Martin,
†Anna Laura Dunlap,	†Grace Ethel Moore,
Helen Heath Ely,	Corinne Ellen Smith,
†Myrtle Guidery,	William Joseph Stack.

GERMANIC LANGUAGES

Grace Maud Allaire,	Ada Lucile Lauer,
†Sophia M. Cramer,	Elizabeth Leona Lodge,
Helen Downing,	Marie Magdalene Luers,
Edith Abigail Hill,	†Francis Evelyn McDowell,
Elsie Kimball,	Anna Metzler,
Augusta Chita Kraft,	Milnora de Beelen Roberts,
	James Ernest Turner.

ROMANIC LANGUAGES

†Francisca Luisa Arqués,	Roque Giorgio,
Genevieve Chambers,	J. D., Royal University of Rome
Jane Elizabeth Evans,	Edwin Hume Skinner,
	Stanley Smith,
	Harry Lee Zint.

ENGLISH

Mary Estelle Alden,	†Blanche Harris,
Chloe Case Anderson,	Ella Rachel Hartnell,
†Grace Amelia Baker,	Mary Emma Hendrick,
Susan Frances Bird,	William Henry Hensey,

John Kester Bonnell,
 †Jane Carroll Byrd,
 Mabel Haughton Brown,
 Grace Lucinda Chandler,
 Shirley Mansfield Charles,
 Charles Judson Crary,
 Thoreau Cronyn,
 Catherine Leota Fields,
 †Cora Helen Gibson,
 †Charles Baldwin Goddard,
 Jessie Mary Greyson,
 B. L., Pomona College
 Roy Overman Hadley,
 Augusta Hardison,

Leona May Hopper,
 Blanche Louise Howard,
 *Jessie Eugenia McClellan,
 Charles Davis McComish,
 Edith Ferris Parsons,
 †Anita Butler Perrin,
 Jennie Sarah Porter,
 Frances Caroline Sawyer,
 Cara Stillman,
 William Benson Walling,
 †Florence Helena Wanzer,
 Ella Gertrude Wood,
 †Zoe Larkins Woolsey.

PHILOSOPHY

†John Edgar Coover,

Anna Diller Starbuck.

PSYCHOLOGY

Carrie Walker Liddle.

EDUCATION

Katharine Adams,
 Ernest Elwell Balcomb,
 Alexander Brainard Coffey,
 Lee Carroll Hawley,
 Granville Bond Jeffers,

Peter Joseph Jensen,
 Toshi-yasu Kuma,
 Edith Mansfield,
 Charles Edward Rugh,
 William Walter Swing.

HISTORY

George Castle Barton,
 Flora Belle Beecher,
 Mary Macdonald Chandler,
 Mildred Pitkin Chapman,
 Katharine May Doran,
 Ralph Waldo Everett,
 Margaret Summers Faris,
 †Arline Roque Fay,
 Edward Fogg,
 Edith Annie Foster,
 Fletcher Eugene Allen Gaddis,
 †Alice Staniford Hale,

Thomas Alonzo Hayes,
 †Louise A. Holbrook,
 Marion Augusta Horr,
 Lois Kimball Mathews,
 †Adelaide M. Miner,
 †Jame Mori,
 Paul Percy Parker,
 *Harold Spencer Percival,
 Mary Hulda Peterson,
 Agnes Sibbald Ritchie,
 Terry Elmo Stephenson,
 Ansel Smith Williams,

Theodore Christian Zschokke.

ECONOMICS AND SOCIAL SCIENCE

Jessie Frances Bell,	Ralph Dennison Frisselle,
†Clarence Stephen Crary,	Samuel Parker Frisselle,
*Walter C. Maloy.	

LAW

Harry Hunt Atkinson,	Ralph Clinton McComish,
Walter Benedict Barnhisel,	George Martinson,
Frank Waite Bennett,	William Gentry Morrison,
William Elbridge Billings,	Joseph Henry Page,
Gilbert Denison Boalt,	Thomas Lewis Earle Palmer,
Lynne Fox Clinton,	James Benjamin Peckham,
Arthur Edward Cooley,	Louis Heaton Roseberry,
David Van Clief Cowden,	*Hall Carlos Ross,
*Carl Frederic Dittmar,	Carroll DeWilton Scott,
*Reginald Goodwin Fernald,	George Springmeyer,
*Abe Perry Harris,	A. B., Univ. of Nevada
George Hewlett,	Rebecca Selena Suhr,
†Royden James Keith,	Edward Irving Thayer,
Rufus Hatch Kimball,	*Andrew Garl Thompson,
William Baum Lowenthal,	Claude Ownby Winans,
	Lawrence Evert Worstell.

DRAWING

†Theodora Holly.

MATHEMATICS

David Burcham,	†Edith Irene McCroskey,
Warren Worth Jones,	Alma Morehead,
B. S., Purdue University	Theresa May Wilbur.
Lucia Nichols Keniston,	

CHEMISTRY

William Whipple Copp,	Charles Edward Maw,
Robert William Dodd,	†Joseph Adams Miller, Jr.,
†Juroku Fujii,	†Harry Norman Snively,
Noah Centennial Grider,	Frank Ernest Sohler,
Robert Jennings,	Bessie Strange,
May G. Kimble,	†Charles Henry Whiting.

BOTANY

Delos Darwin Davis,	†Albert Christian Herre,
†Clara Alice Tompkins.	

Degrees Conferred

PHYSIOLOGY AND HISTOLOGY

Frederick Allen Brown,	†Mary Isabel McCracken,
Frederick Fretageot Gundrum,	Luman Gordon Moore, Jr.,
Hattie Dora Frances Haub,	Elizabeth Anne Peckham,
*Mary Ashmun Hodge,	Charles Maynard Richards,
Ella Ibs,	†Walter Gustav Adolph Schulte,
Virginia Mabel Kelly,	†Marie Simon.

ZOOLOGY

Mary Amelia Barnett,	†Earl Leonard Morris,
Olney Edwin Bremner,	May F. Houghton White.

ENTOMOLOGY

Alice Mary Brown,	George Albert Coleman,
	Dudley Moulton.

GEOLOGY AND MINING

*Irving Anderson,	Chester Naramore,
†Oliver U. Bradley,	*Edward Augustus Smith, Jr.,
Alfred Rowell Dole,	Paul Lavendee Smith,
Frank L. Hess,	William Lester Walker,
Ruliff Stephen Holway,	William Alfred Williams.
*Earl H. Knepper,	

CIVIL ENGINEERING

Kenneth Farra Cooper,	Andrew Swickard,
John Harrison Foss,	William Franklin Whitaker,
Oswald Proctor Shelley,	Charles Newton Young.

MECHANICAL ENGINEERING

Harold Hall.

ELECTRICAL ENGINEERING

Arthur Oswin Austin,	Josiah Pickard Jollyman,
Robert James Hughes,	August Julius Pahl.

BACHELORS OF LAWS

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ALUMNI ASSOCIATION

Organized June 15, 1892

CONSTITUTION

In order to promote the interests of the University, to secure unity among its graduates, and to foster an attachment to our *Alma Mater*, we do hereby constitute ourselves an association to be known as the Alumni Association of the Leland Stanford Junior University.

1. All persons who have received a degree from the Leland Stanford Junior University are members of this Association.

2. All members of the Faculty are honorary members of this Association.

3. The officers of this Association shall be a President; one Vice-President from each successive group of five classes (provided that when the last group shall number three classes it shall thereafter be entitled to a Vice-President); a Secretary; and a Treasurer.

4. There shall be an Executive Committee to consist of the following persons: the Secretary and Treasurer of the Association, and three other persons chosen by the Association, one of whom shall be designated as Chairman of the Committee.

5. It shall be the duty of the Executive Committee to arrange the programmes for Alumni Day and other public occasions; to regulate the finances of the Association; to perform such other duties as may be imposed upon them; and to attend to all business of the Association not otherwise provided for.

6. The President shall be *ex-officio* a member of all committees. At each annual business meeting he shall appoint a committee of two persons to audit the Treasurer's accounts.

7. The officers and the Executive Committee shall be elected by ballot at the annual business meeting to be held on Alumni Day, a majority of all votes cast being necessary for election.

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